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Evacuating the Thames Estuary

VERY wisely the Air Ministry has decided to move the Air Armament School from Eastchurch to a new aerodrome at Manby in Lincolnshire. The matter is not being hurried, and it will probably be two or three years before the new station is fully equipped to accommodate the school, the headquarters of the Armament Group, and a resident population estimated at some 700 men. This move, of course, has nothing to do with the tragic accident which happened on the shooting ranges of Eastchurch some time ago, when a private boat was mistaken for the target and a girl was shot. It is merely part of a deliberate policy on the part of the Air Ministry to evacuate the Thames Estuary, which is undoubtedly the most vulnerable part of the whole United Kingdom to air attack. If ever again hostile bombers set off from some place on the Continent to raid England, they will in almost any weather conditions find the Thames a sure guide to London. That does not mean that it would always be wise for them to take such an obvious route, for it is sure to be strongly defended, but none the less it would be folly for us to provide the invaders with valuable alternate targets in the event of their finding it too dangerous to make their way up to the capital. We commented a few weeks ago on the location of Woolwich Arsenal, which is dangerous in the extreme. The place only escaped destruction in the last war by some incomprehensible oversight on the part of the enemy. Woolwich Arsenal, however, is not in the care of the Air Ministry, and it might need a Cabinet decision to authorise its removal. Air stations can be moved without much trouble or expense, and the Air Ministry is taking time by the forelock, which is the most economical way of dealing with such defensive matters.

It is over three years since No. 33 (Bomber) Squadron was moved from Eastchurch to Bicester. The move of the Air Armament School is a natural corollary. There remain along the line of the Thames Estuary Manston Aerodrome and Kidbrooke. The former is the home of No. 500 (County of Kent) (Bomber) Squadron and No. 2 (Army Co-operation) Squadron; while the latter is the location of No. 1 Stores Depot. Squadrons can be moved hurriedly when danger threatens, and a night-bomber squadron would certainly be transferred to a war station. No. 500 is a Cadre squadron, and in peace time there are good reasons for leaving such a unit in its own territory. In time of war a night-bomber squadron, with the long range of its machines, can safely be located farther from the coast than can a day-bomber squadron. The movements of an army co-operation squadron would, of course, be dictated by the needs of the Army. The great Stores Depot at Kidbrooke is another matter. It would be very difficult to move it in a hurry. Certainly, during the German advance of March, 1918, the Supply Depots at Candas and Fienvillers were successfully moved back to prevent the possibility of capture by the enemy, but that was a case of urgent necessity. It would be an appalling business to move the Kidbrooke Depot after war had broken out, and the work of the Air Force would be seriously hampered while this depot was not functioning. Its destruction cannot possibly be risked. It seems certain that the move must be made before there can be any likelihood of attack.

While the evacuation of the estuary is a matter of common sense, the fact should not be overlooked that the great flat plain of Eastern England between the Thames and the Humber may become rather crowded. There are already a number of R.A.F. stations in that part of the country, and Mildenhall and Manby add to the number, while Sutton Bridge is being enlarged. The flatness of the country makes it attractive for air work, and perhaps the featureless nature of the great plain may make identification by enemy night-bombers not too easy a matter. Still, it is within reach of an enemy from parts of the Continent, and it would hardly be good policy to strew it too thickly with aerodromes. The western side of the country, though more hilly and more cloudy, is safer. Raiders are more easily spotted and

intercepted after they have crossed our coast, and the farther they have to fly inland the easier becomes the task of the defence.

The move from Eastchurch arouses one melancholy thought. Is that most historic of all our aerodromes to be abandoned? Is the place where Longmore, Samson, Gregory, and Gerrard were taught to fly by Cockburn, through the generosity of Frank McClean, to return to sheep pasture? Well, if it has to be so, Eastchurch has played a worthy part, and has served the country well. It has done enough for honour, and may be said to have earned its retirement.

The Modern Domesday

AERIAL survey is a work which goes on steadily, and has become so thoroughly accepted as a feature of modern life that now it rarely attracts much attention in the Press. Presumably, from the news point of view, one air survey is very much like another, and when the methods have once been described, there is little interest in covering the same ground again. Overlapping is necessary in the aerial photographs, but not in letterpress. Still, we never hear of an enterprise of the aerial survey companies without a renewed feeling of wonder at the great boon which the discovery of flying has conferred upon mankind. This is an age of maps. Nearly everyone travels by road when possible, and road travel means that good maps are the traveller's best friend. We all owe a very great debt to the Ordnance Survey, and to those map-makers who base their publications on the work of that survey.

Yet maps compiled by ground methods, which are still the most reliable of all methods, and are indeed indispensable even when the aeroplane is called in to help, take an infinity of pains and time to compile. Man crawls slowly, and sometimes most uncomfortably, over the earth, with his vision strictly limited, laboriously noting all things on the earth. The aeroplane climbs aloft, and sees a whole tract in a flash. Its camera makes a permanent record, and all the data necessary for a general knowledge of the area are collected in a minimum of time. The saving in time and money is so great that no subsidy need be called for from the Government. It is a case where the aeroplane pays its way.

On another page we comment on a scheme which is now being considered by revising the Ordnance Survey plans for the town ("built-up" is the fashionable phrase) areas of this country. Building is going on at such a desperate rate that an area may become unrecognisable after an absence of a few months. Nothing, it seems, but the aerial camera can enable the records to keep pace with the development; and it is a welcome sign of the times that the value of that method of work is now generally accepted with confidence.

No. 501 (City of Bristol) (Bomber) Squadron in their Westland "Wallaces" (Bristol "Pegasus") flying over Clifton Suspension Bridge. An article on the squadron appears on another page. (*Flight* Photo.)

The Outlook

A Running Commentary on Air Topics

De Havilland's Racer

ELSEWHERE in this issue will be found the first photographs of the new de Havilland "Comet," specially designed and built for the England-Australia Race. It is too early to express an opinion of the speed which may be developed when the machine has been thoroughly tested out and tuned up, but the first test flights give grounds for optimism. Capt. Hubert Broad has had the first of the three machines built out for a few relatively short flights, and we gather that it showed no obvious signs of having any serious vices. A good deal of flying will still be required to test out the controllable pitch propellers, the working of the retractable undercarriage gear, the trimming effects of the particular petrol tank arrangement chosen, and similar minor problems; but in the main, the machine can already be said to be "right." There was an amusing incident during the first flight, when Capt. Broad had forgotten which way the retracting gear worked, and was uncertain whether the wheels were "up" or "down." (The indicator had not then been fitted.) He thought of a good way of finding out: Flying low over Hatfield Aerodrome as if about to land, he watched the reactions of those on the ground. A frantic waving of arms and handkerchiefs told him plainly that the wheels were decidedly "up." While making another circuit he lowered the wheels and landed.

It will be remembered that when the de Havilland Company first announced their preparedness to build machines specially for the MacRobertson Race, a speed of 200 m.p.h. was guaranteed. Already it has been ascertained that this will be quite easily attained. The designers refuse to make "guesses," but speculative estimates made by people outside the firm range from 225 m.p.h. to 250 m.p.h. If one looks at the machine when it is resting on trestles and the wheels are retracted, there is in truth little to stop it from being very fast. Within a week or so the actual speed should be known.

A Potential Mailplane

ALTHOUGH specially designed for the MacRobertson Race, the "Comet" is very far from being a mere racing "freak." The fact that it has to pass the official take-off tests with full load has kept the loading down to reasonable values, and yet the speed has been obtained with what must be regarded as very moderate power. To attain well over 200 m.p.h. with a machine carrying a crew of two and a pilot for over 2,000 miles for an engine power of only 460 b.h.p. or so indicates real efficiency. As previously pointed out in *Flight*, the "Comet" would make a very fine mailplane if slightly modified, but whatever success the type has in the race we regard its potential utility afterwards as far more important.

Racing Technique

NUMBERS of amateur pilots take up racing each year, and many of them tumble into the pitfall of putting down to the handicapper their failures to get past the winning post before others in the race. They ought to ask themselves whether there was anything in their piloting which might account for their not getting a prize. It is so easy to blame the handicapper and to assume, often out loud in public, that they could not have flown straighter than they did. We have for many years, in the course of our work, attended the majority of the races held in this country, and can, from personal observation, state that very few pilots fly so well that they lose nothing in time or distance. The handicappers cannot allow for errors of this nature; they must assume that all the pilots will get the utmost out of their machines, though in point of fact it is only a few of the old hands at the game that do so. Watch the start of any race, and it is certain that you will see quite a wide divergence of direction in which the various pilots leave the aerodrome after their take-off, and the result is bound to be a loss of a second or more to some of them. Watch the finish, and you are sure to see some pilots arriving from different directions and not dead on the same line as they would were they all on the correct course, and again more seconds are lost. Get behind any turning point in a race and watch once more the way some pilots fly straight on the next course, while others go for a short tour round the country before doing so. Some pilots think that the key to success is to fly very low, quite regardless of the wind direction. They know that the wind is generally less strong near the ground, and therefore imagine that to win the race they have only to "hedge-hop." Actually, many of them lose far more time than they gain, because in flying low they lose sight of their objective and cover a lot more ground than is necessary. They would have gained if they had flown a little higher and gone straight, despite the wind.

Cornering in Races

ANOTHER source of loss in a race is cornering. Far too many young pilots who have not taken the trouble to study the subject and to practice, think that the quickest way round a corner is the shortest. It is not. Slow machines can, of course, be pulled round quite sharply without dropping much speed, but the faster the machine the greater the drop. Time and again tests have shown that a gentle sweep with a slight climb and subsequent dive is the method of cornering which loses less than any other. Let the younger generation of pilots learn the technique of racing. There is far more satisfaction in winning a race by sheer skill in piloting than there is in doing so by getting easily handicapped; and while they are learning let them remember that not only is there far more to be learnt than is usually admitted, but that "S.A." flying, as it is known among pilots, is seldom the most efficacious in races.

Air Route Lighting

MUCH money and time is being spent on lighting air routes with beacons placed at intervals along the route. Authorities responsible for these lights say that they are necessary, but many of the pilots flying over those routes say the reverse. Who is right? Nowadays, in our country in particular, when flying during the daytime, flights are more often than not made at an altitude of several thousand feet. This not only ensures a "bumpless" passage, but also puts the machine in clear, cloud-free, and pleasant air. Flying in this manner, when a large proportion of the time may be spent above the clouds out of sight of the ground, presupposes adequate ground control by wireless, and that is just what we have got, on the Continental routes at any rate. Is it not natural, therefore, to assume that it makes but little difference to pilots whether that ground is clothed in darkness or daylight? The general opinion of pilots on these lines seems to be that, providing the airports are adequately lighted, there is little to be gained by the expenditure of money—probably taxpayers' money—on intermediate lighting.

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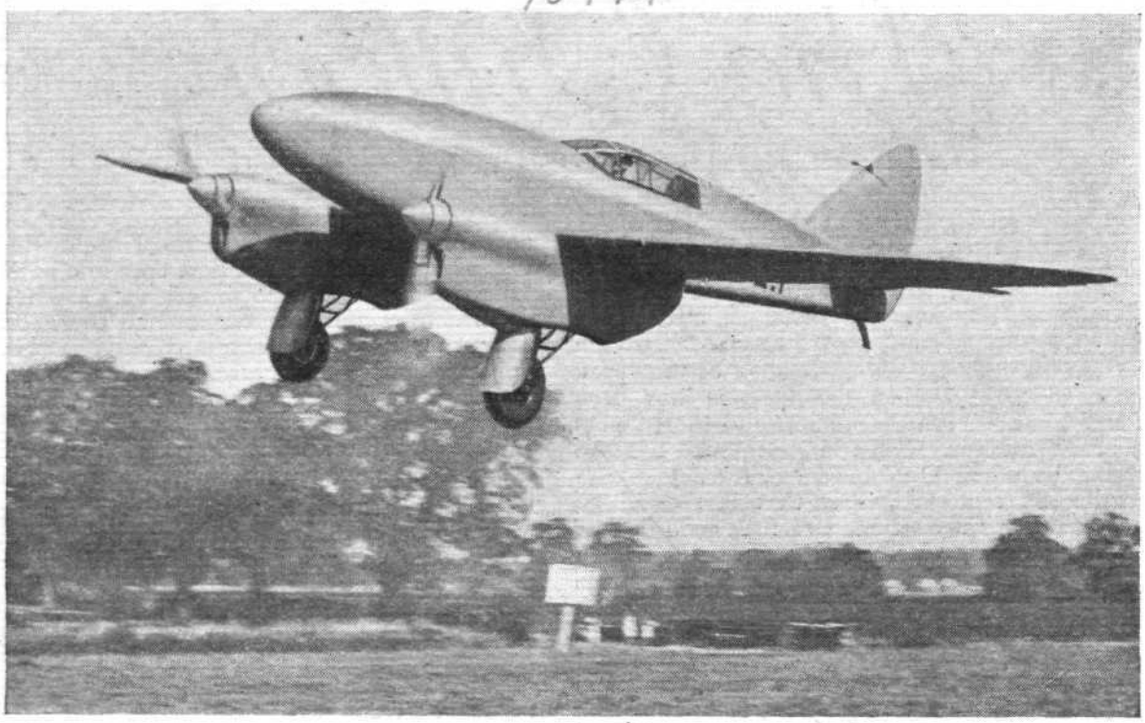

THE DE HAVILLAND "COMET"

Although one of the Lowest-powered Machines entered in the MacRobertson Speed Race, it is the Fastest British Civil Aeroplane ever Produced, if one excepts the Seaplanes built for the various Schneider Contests

FEVERISH activity is seen wherever one turns at Stag Lane, Edgware, these days. Where was once the de Havilland aerodrome the builders are hard at it erecting "desirable residences." In the shops, "Dragons," "86's," "89's" and "Moths" with various prefixes are being turned out ready for transport to the new works and aerodrome at Hatfield. In the experimental shops two of the three "Comets" designed and built for the MacRobertson Race are nearing completion, the third having already been sent to Hatfield for flight tests and finishing touches. Without belittling in any way the older models, it is on the "Comets" that interest centres at the moment. Work has been going on night and day to get these three machines ready, and the fact that the works machinery is in the process of being transferred to Hatfield has not helped to make easier the building of the three "Comets" in time to get them through flight tests well before the start of the race. However, in spite of all difficulties and obstacles the work has gone on, every D.H. employee being as keen on the job as any of the directors or technical staff. The result is both pleasing and encouraging. First flight tests have indicated that the "Comet" is certainly fast. How fast has not yet been ascertained, as the machine has not, at the

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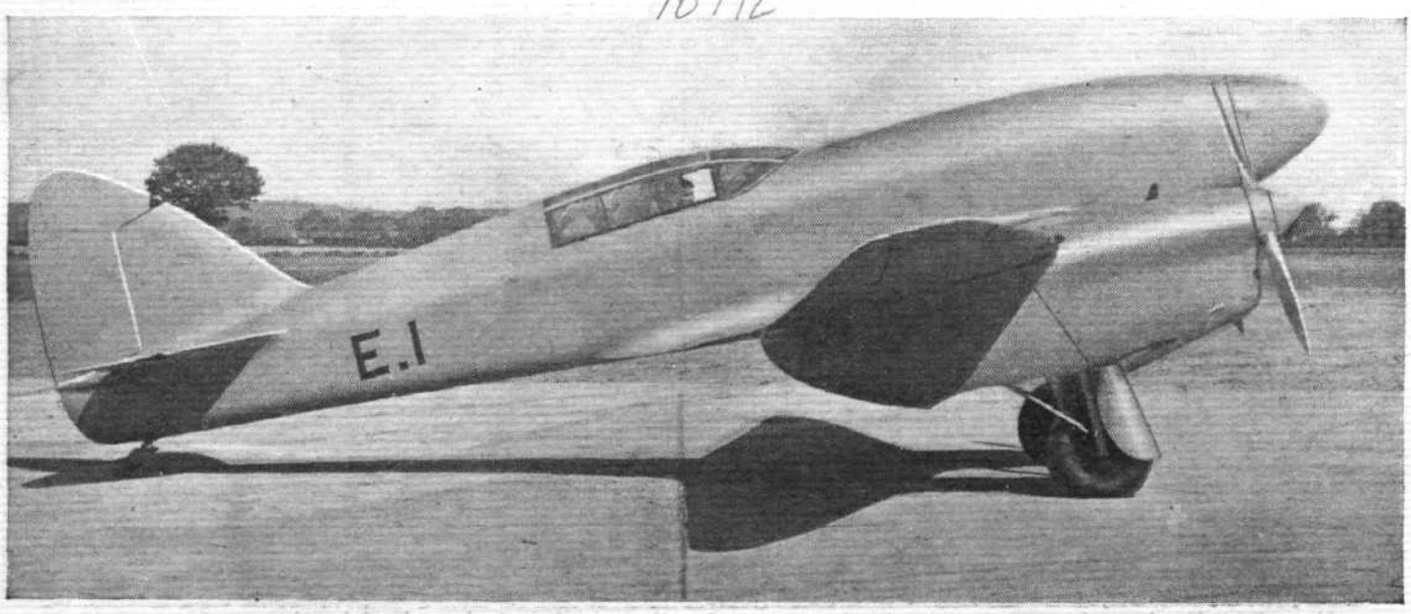
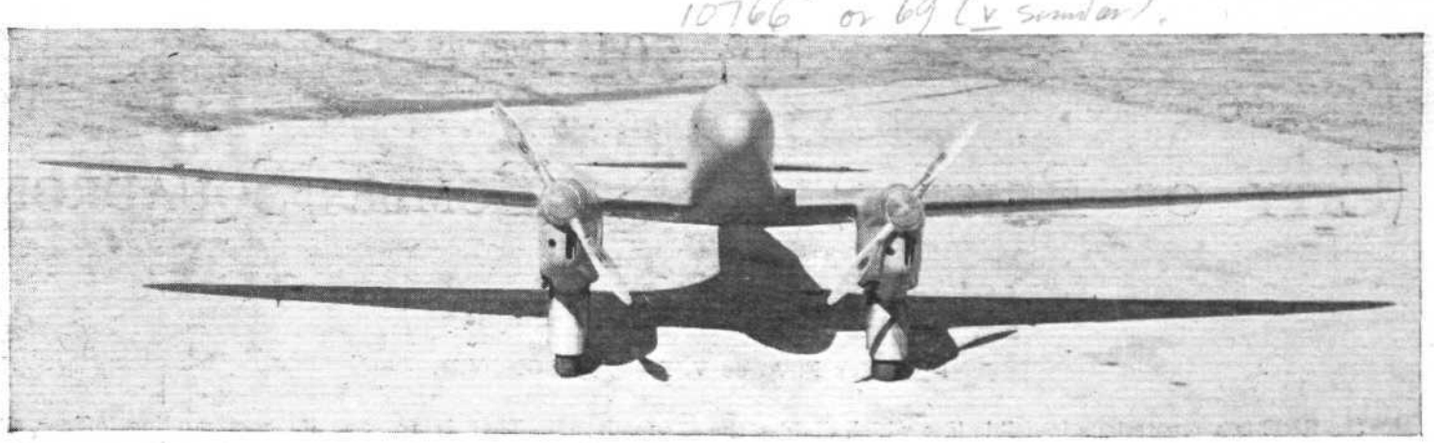


STREAMLINING: This side view of the D.H. "Comet" shows how near the fuselage approaches to an ideal shape. (*Flight* Photo.)

10766[5] or 69 (v similar).



ALL THERE IS OF IT: When the undercarriage wheels are drawn up, the cowls form part of the smooth bottom of the nacelles. (*Flight* Photo.)

moment of writing, been flown over any speed course. But one need only look at the machine, at its small cross-section of fuselage, its perfect streamline shape, its small tapered cantilever wing, its carefully-cowled engine installations, and its retractable undercarriage, to see that there is little to stop it from being fast. This fact gives one every hope that, in spite of the relatively low power (two special high-compression "Gipsy Six" engines developing probably about 230 b.h.p. each) the "Comet" will represent Great Britain worthily in the forthcoming England-Australia Race.

At a future date it is hoped to publish a detailed description of the "Comet." In the meantime, the photographs will give a very good idea of the general lines of the machine. It is a low-wing cantilever monoplane of wood construction as regards the primary structure. Everything has been done to reduce drag. The cantilever wing is of thin section. In fact, it is the thinnest cantilever wing we have ever seen. Even at the root the thickness is not very much greater than that of an average biplane wing. How the de Havilland designers have managed to provide the necessary strength in such a thin wing will be explained when we publish a detailed description.

The fuselage is of almost perfect streamline shape, and the placing of the crew rather far aft probably disturbs the airflow much less than if there were a windscreen near the nose. Large fillets between the wing roots and the fuselage should reduce interference to a minimum. Similar care has been taken in fairing the tail surfaces into the fuselage. The engine nacelles-cum-wing arrangement has also been designed to keep down drag, and when the wheels are raised their shields form part of the bottom of the nacelles, so that the flow is disturbed as little as possible. Controllable pitch propellers will be used, and should help materially in enabling the machine to pass the take-off test with full load.

It will be remembered that three "Comets" have been entered for the MacRobertson Race, in which they will carry the racing numbers 19, 34 and 63. No. 19 has been entered by Mr. Bernard Rubin, but his illness may possibly

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AFTER THE FIRST TEST FLIGHT: Capt. Broad relates his impressions. From left to right, Capt. G. de Havilland, Capt. Broad, Mr. Hagg, Capt. Walker and Major Halford. (*Flight* Photo.)

prevent him from flying, and another pilot may have to be found. No. 34 has been entered by Mr. A. O. Edwards, and will be piloted by C. W. A. Scott and Campbell Black. No. 63 is that to be flown by Mr. and Mrs. Mollison. Rubin's machine is to be painted green, Scott's red, and Mollison's black.

WOODEN SINGLE SPARS

Mr. F. Duncanson sends us the following:—

In *Flight* of August 30 a correspondent [2958] asks if a wooden spar would give the same weight reduction. I have a perfectly open mind on the question of wooden versus metal construction for aircraft, and, in fact, I believe that in certain instances wood is by far the best material to use. There is a tendency in certain quarters to think that it is not "good engineering" to use non-metallic materials, but as a matter of fact the engineer has to use a great diversity of different materials, *e.g.*, leather, rubber, asbestos, quartz, mica, etc., in order to achieve his results. In the case of a fabric-covered wing for instance, the covering is made of one of the finest engineering materials available, because its strength/density ratio is about equivalent to that of high tensile steel. Fabric for wing covering also gives other advantages, such as ease of inspection and repair.

The tapered tubular spar could easily be made in three-ply and spruce, and the structural weight saving would be about the same as in the case of the metal construction, since the strength/density ratios of the former materials are of the same order as those of duralumin and high tensile steel.

One must not overlook the fact, however, that when you make the spar in metal, you also make your petrol tanks and their mountings, practically as a free gift both as regards manufacturing costs and weight saving. Taking the foregoing into consideration, together with the great simplicity of design and the absence of fittings in the metal spar, it would appear that the balance of advantage lies in favour of metal construction in this case. From the purchaser's point of view also, the addition of pay load obtained by the elimination of most of the fuel system weight, is an important consideration.

I am of the opinion that it is still worth while doing some research and testing work on a tapered tubular single spar in three-ply, it may produce interesting results. Information *re* the latest improvements in protecting ply from the weather also would be most interesting and I hope people who have worked on this will come forward with their experiences.

No. 501

(City of Bristol) (Bomber) Squadron

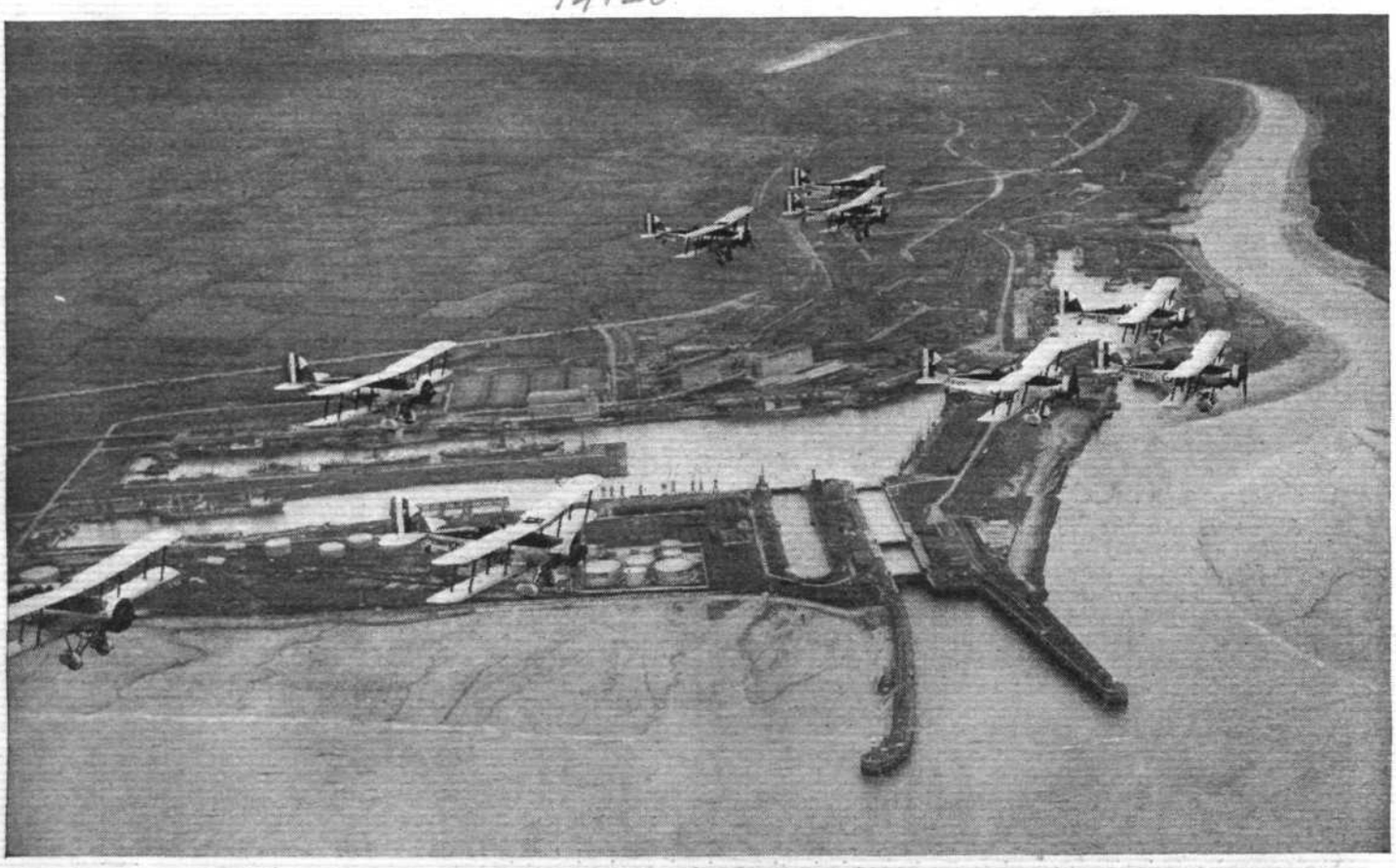
A Cadre Squadron at Filton

By Major F. A. de V. ROBERTSON, V.D.

THERE is a mysterious invisible line which divides the West from the rest of England. Any man with a drop of Western blood in his veins (the present writer is proud to be one such) knows by some sort of sixth sense when, on the journey from London, he has crossed that line, and at once a sense of exhilaration catches hold of him. The very air smells more fragrant, while the hills and plains and marshes all hold a charm for him which he never finds among the sweetest lanes of Surrey or the prettiest villages of Kent. Dorset, Wiltshire, Somerset, Gloucester, Devon, all these are of the West. Cornwall—well, perhaps Cornwall stands by itself. Those five counties are the heart of old Wessex, and it was Wessex which subdued the Anglo-Danish kingdoms of the Midlands and the North and so created a united England.

The air, we are often told, knows no boundaries, but even the air cannot escape the magnetism of the West. What could be more completely typical of that Delectable Duchy than No. 501 (City of Bristol) (Bomber) Squadron? Its aeroplanes come from Yeovil, its engines come from Bristol, and of its officers and men a good two-thirds belong to that same city and the districts round it. It is heart and soul a Western squadron.

The City of Bristol Squadron is what is called a Cadre squadron. That is to say, its commanding officer, its adjutant, its stores officer, its accountant officer, and the personnel of one of the three flights all come from the regular Royal Air Force. The officers and men of the other two flights and some of the headquarters personnel belong to the Special Reserve. The Special Reserve must on no account be confused with the R.A.F. Reserve, though there are so many categories of R.A.F. officers and men that the public may well be excused if it does sometimes mix them up. If we have to mobilise in an emergency, then the officers and men of the R.A.F. Reserve will join regular squadrons. The Special Reserve are only concerned with their own Cadre squadrons. In peace time the R.A.F. Reserve officers do a certain period of training each year at one of the civilian flying schools appointed by the Air Ministry for that purpose. The Special Reserve officers and men definitely belong to their own squadrons and train with them all the year round. It is rather a unique arrangement. The Special Reservists are citizen airmen who earn their living in a civilian capacity, but serve their country by training with their squadron in their spare time. So do the officers and men of the Auxiliary Air Force, and the question may be asked: what is the difference between the two? The only difference is that they serve in different



IN THE WEST COUNTRY: No. 501 (City of Bristol) (Bomber) Squadron flying their Westland "Wallaces" (Bristol "Pegasus") over Avonmouth. (*Flight* Photo.)

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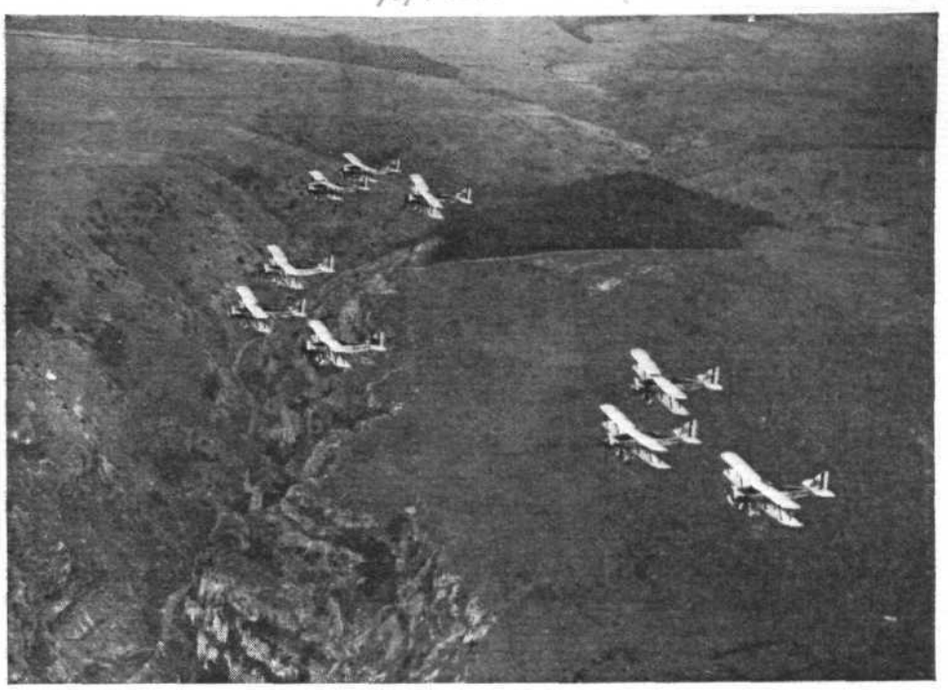

THE CHEDDAR GORGE: A striking picture of the City of Bristol Squadron over the Mendip Hills in Somerset with the famous gorge below them. (*Flight* Photo.)

sorts of squadrons. An Auxiliary squadron is almost entirely a voluntary organisation, and the Commanding Officer is himself a civilian who serves in his spare time. Only the adjutant and a small nucleus of airmen belong to the regulars. In a Cadre squadron, on the other hand, the Commanding Officer is a regular, and from one-half to one-third of the officers and men are also regulars. On a day when it was impossible for civilians to leave their ordinary occupations, it would still be possible to put at least one flight of a Cadre squadron into the air at a moment's notice. It is, however, interesting to note that, whereas the Commanding Officer will normally be a regular officer, the Air Council may at their discretion appoint a Special Reserve officer to command a Cadre squadron.

As I said above, this blending of civilians and regulars in one unit is rather a unique arrangement. It has certain obvious advantages. The regulars have had their Service training, and they have their Service traditions. They carry on as an ordinary regular squadron carries on. Whereas the Auxiliary squadrons arrive at efficiency (and they undoubtedly are efficient), some in one way and some in another, not necessarily following the exact pattern of the regular Air Force, the much stronger nucleus of regular personnel in the Cadre squadrons does naturally tend to mould these squadrons more on regular lines. They, too, retain a certain definite individuality of their own. The association of regular and non-regular elements—more evenly balanced in the Cadre than in the Auxiliary squadrons—is to the mutual advantage of both. What the Special Reserve officers and men learn from their strictly orthodox regular brethren is happily set off by what the regulars learn from the former about the citizen airman's point of view.

There is no doubt that they get on exceedingly well together. In due course the various regulars will be transferred to other regular squadrons, and their presence there should tend to prevent any undesirable feelings from growing up between the regular squadrons and those squadrons which rely wholly or partly on citizen airmen. This is a point of some importance, for in the Army, before the war, the regulars were never filled to bursting point with admiration for the Territorials. It is always a rather delicate matter to prevent undesirable animus growing up between the professional and the amateur elements in a fighting Service. Things seem to work more smoothly in that respect in the Air Force than in older Services, partly perhaps because so many of the regular officers hold Short Service commissions, and so cannot feel that the Service is their life's profession. Be that as it may, this mingling of regulars and Special Reserve elements in the Cadre squadrons quite evidently makes for a "happy ship."

As for the actual proportions, the establishment allowed for No. 501 B.S. is:—Regulars, 1 squadron leader, 2 flight lieuts., 5 flying officers, 3 warrant officers, 1 flight sergeant, 5 sergeants, 9 corporals, and 43 aircraftmen. Special Reserve, 14 officers plus 1 medical officer, 2 flight sergeants, 2 sergeants, 8 corporals, 67 aircraftmen. During the week all the aircraft and engines of the squadron are maintained by the regulars, but on Saturdays at 1 p.m. the men of "B" and "C" Flights (i.e, the Special Reserve) take over their own aircraft and engines and maintain them during the week-end. In the headquarters airmen of both categories are included. Clerks cannot be conveniently drawn from the Special Reserve, as clerical work must be carried on continuously and cannot be closed down for the greater part of the week. Moreover, few civilians would care to join a squadron merely to be clerks.

The Special Reserve officers enrol for five years, and they may extend their service by further periods of five years. There is no obligation for them to join the Reserve of Air Force Officers on completing their engagement with the Special Reserve, though, of course, there would be no objection to their doing so if they felt so inclined. Their undertaking in the Special Reserve is to attend twenty instructional parades and to do twenty-four hours' flying during the

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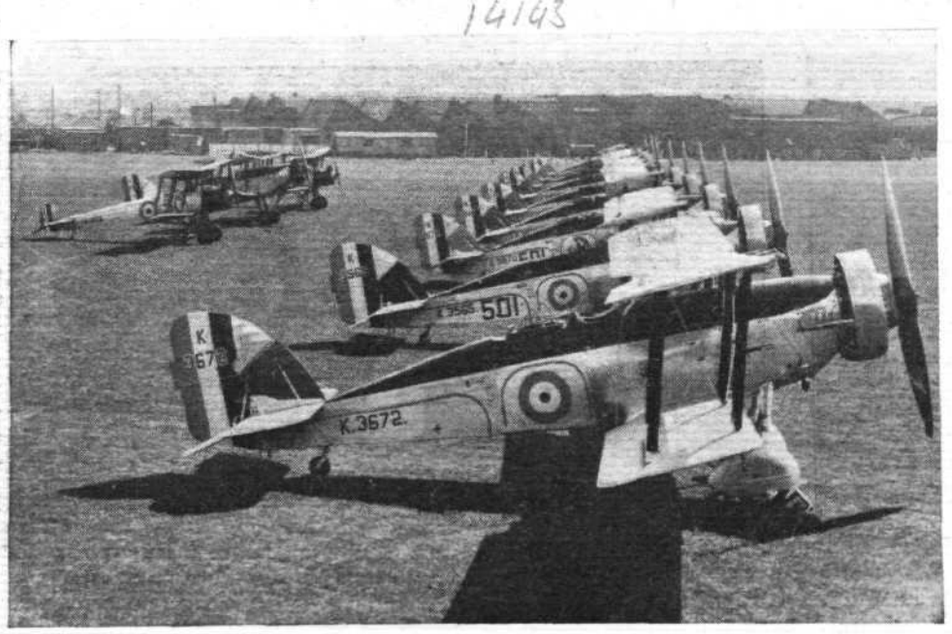

THE SQUADRON'S AIRCRAFT: In the front are the nine Westland "Wallaces" (Bristol "Pegasus"), while behind are two "Avro-Lynx" training machines with a "Wapiti" ("Jupiter") in between them. (*Flight* Photo.)

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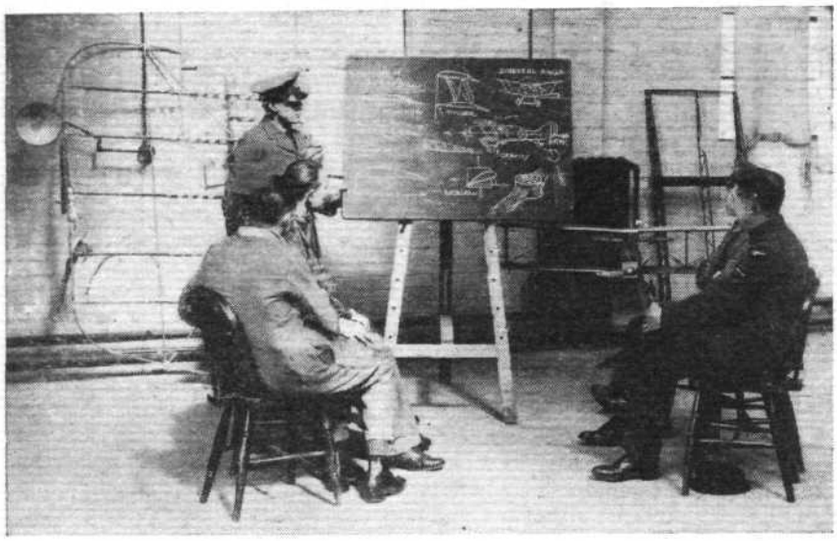

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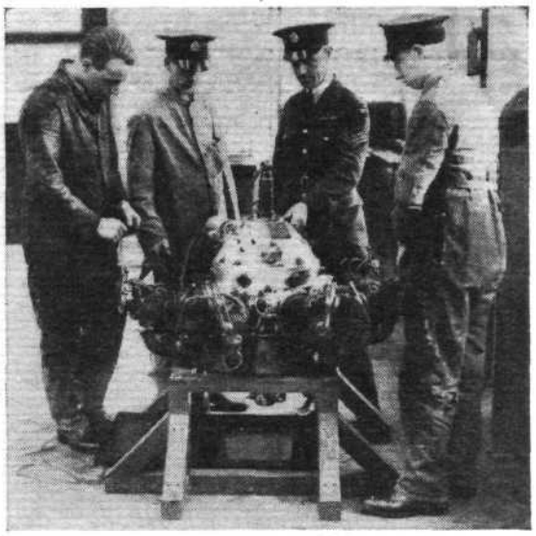

INSTRUCTION : In the left-hand picture the Special Reserve airmen of the squadron are receiving rigging instruction, and on the right is an engine class. (*Flight* Photos.)

year, as well as to attend camp for a fortnight. No. 501 B.S. has always gone to Manston for camp, and is going there again this year. During camp the S.R. officers receive the pay of their rank, and they also receive what is called periodical flying pay. During the first eighteen months of their service they must attend the Air Armament School at Eastchurch for twelve days, and promotion from pilot officer to flying officer is only granted if the officer has passed his Eastchurch course.

The regular establishment includes one chief flying instructor who is a flight lieutenant, and another flying instructor who is a flying officer. These two teach the S.R. flying officers to fly *ab initio*, at no cost to themselves. This is naturally a great attraction. Once the men become members of the squadron they quickly imbibe its spirit, and realise that they have undertaken serious duties to their country of which mere flying is (so to speak) just the groundwork. They are expected to become efficient officers in all respects, and they rise to the occasion. The obligations, which ask a very minimum, are quickly forgotten, and the only object kept in view is to make the squadron as efficient as any other bomber squadron in the Service. The S.R. officers come from various walks in life. In No. 501 B.S. two are barristers, one is a solicitor, two are bankers, one is a business man and a city councillor, one is a farmer from Herefordshire, and one is a son of the Governor-General of New Zealand.

The S.R. airmen enlist for two years, but can extend their service by successive periods of one year. They get a bounty of £3 for the whole annual training, in which they undertake to attend a minimum of twenty instructional parades as well as camp. If they are efficient tradesmen they may be excused six days of the fourteen at Manston and make them up at Filton. Most of the S.R. airmen work for their living in the various factories in Bristol, and not a few are employed by the Bristol Aeroplane Co., whose works are on the other side of Filton aerodrome. This is very convenient for them, for the squadron has not yet been allowed a Town Headquarters for ground instruction and social pusuits. It is hoped that this may be granted in time. At present the men attend at Filton on Monday evenings for ground instruction.

Talking of social life, the squadron is very energetic in that respect. In winter it runs two Soccer teams, and in summer two cricket XI's. A dance is held once a month in winter in the squadron workshops, and there is an occasional dance in summer. There are also weekly whist drives in winter. The officers' mess gives a dance at Christmas and holds a guest night once a month. Now and again lectures with lantern slides are given, and while the representatives of *Flight* were enjoying the hospitality of the squadron they were privileged to hear one by Lord Apsley on his flight to Australia and on farming life in that Dominion, illustrated by some very interesting slides from photographs which he had taken himself.

The City of Bristol Squadron was formed in June, 1929, and was originally equipped with the D.H.9.A. Later this was changed for the "Wapiti," which in March, 1933, was again changed for the "Wallace," also a product of the Westland Aircraft Co. and also driven by a Bristol

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GROUND WORK : The Special Reserve airmen of the Cadre squadrons are taught all branches of R.A.F. work. The left-hand picture shows machine-gun practice at the range, and on the right is a signalling class. (*Flight* Photos.)

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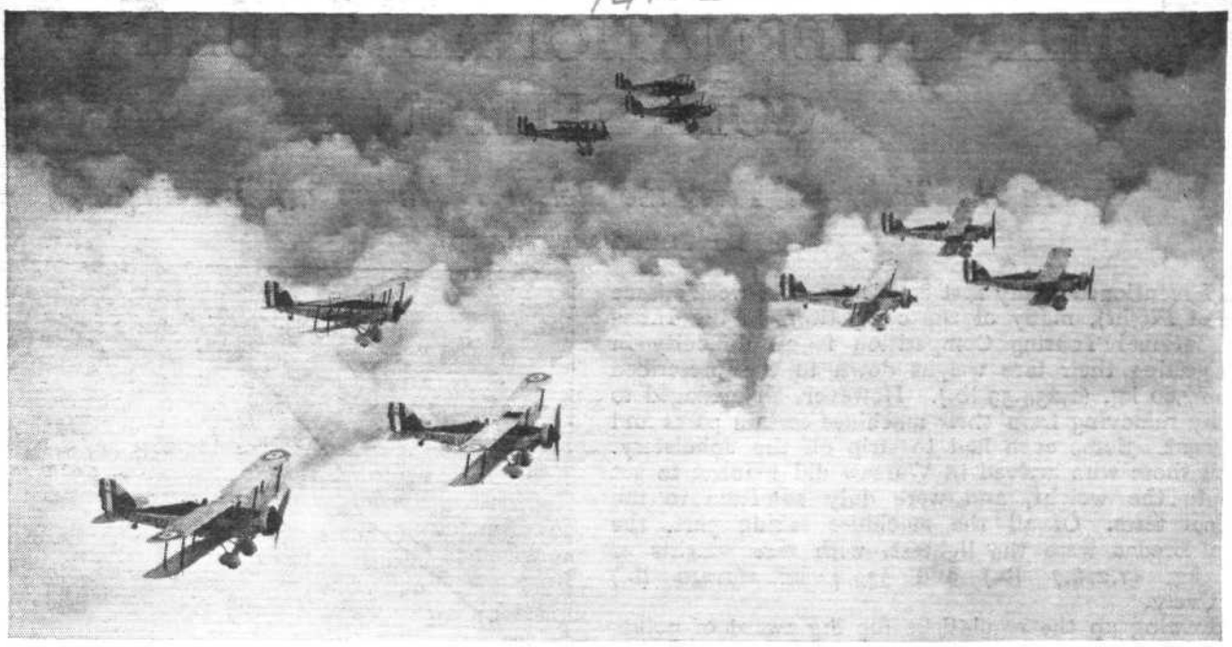

ABOVE THE CLOUDBANK : Good flying in squadron formation by the City of Bristol Squadron. One flight is composed entirely of regulars and the other two of Special Reserve officers and airmen. (*Flight* Photo.)

engine, a "Pegasus IM3." This excellent engine produces 540 h.p. at 4,000 ft. At 5,000 ft. the "Wallace" a cruising speed of about 130 m.p.h., and the whole squadron can cruise at that speed in formation. It carries a load of about 500 lb. of bombs.

ROYAL AIR FORCE SQUADRONS

Other descriptive articles concerning the work of various R.A.F. Squadrons, etc., have been published in *Flight* as follows :—

H.M. Aircraft Carrier *Glorious*. May 16, 1930.
No. 4 (Army Co-operation) Sq., (South Farnborough) ; No. 17 (Fighter), Sq. (Upavon) ; and No. 33 (Bomber), Eastchurch. June 27, 1930.
No. 601 (County of London) (B.) Sq., A.A.F. (at Lympne). August 15, 1930.
No. 43 (Fighter) Sq. (Tangmere). September 19, 1930.
No. 2 (Army Co-operation) Sq. (Manston). December 19, 1930.
No. 101 (Bomber) Sq. (Andover). April 24, 1931.
Nos. 240 and 209 (Flying-Boat) Sq. (Mount Batten). June 12, 1931.
"1890–1912–1931." (An outline of the Growth of the R.A.F.) June 26, 1931.
Cambridge University Air Sq. (at Old Sarum). July 10, 1931.
Central Flying School (Wittering). July 17, 1931.
Submarine Aircraft Carrier "M.2." July 31, 1931.
Oxford University Air Sq. (at Eastchurch). August 7, 1931.
No. 600 (City of London) (Bomber) Sq., A.A.F. (at Tangmere). August 21, 1931.
No. 605 (County of Warwick) (Bomber) Sq. (Cas. Bromwich). April 1, 1932.
No. 40 (Bomber) Sq. (Upper Heyford). May 13, 1932.
Nos. 7 and 58 (Bomber) Sq. (Worthy Down). June 10, 1932.
A visit to H.M.S. *Exeter* of 2nd Cruiser Squadron, Home Fleet. June 17, 1932.
Oxford University Air Sq. (Eastchurch). July 22, 1932.
Cambridge University Air Sq. (Netheravon). August 5, 1932.
No. 1 Air Defence Group (A.A.F. and Cadre Sqs.). August 12, 1932.
No. 100 (Bomber) Sq. (Donibristle). August 19, 1932.
Scotland's Auxiliaries ; No. 602 (City of Glasgow) (Bomber) Sq. and No. 603. (City of Edinburgh) (Bomber) Sq. September 16, 1932.
London Auxiliaries ; Nos. 600, 601 and 604 B. Sq. October 20, 1932.
No. 25 (Fighter) Sq. (Hawkinge). December 8, 1932.
No. 19 (Fighter) Sq. (Duxford). January 5, 1933.
H.M. Aircraft Carrier *Courageous*. January 12, 1933.
Lee-on-Solent. February 9, 1933.
No. 23 (Fighter) Sq. March 2, 1933.
Gosport. The Fleet Air Arm Base. March 30, 1933.
Larkhill. R.A.F. Balloon Centre. June 8, 1933.
The R.A.F. Staff College, Andover. July 20, 1933.
No. 99 (Bomber) Sq. (Upper Heyford). August 3, 1933.
No. 26 (Army Co-operation) Sq. (Catterick). August 10, 1933.
No. 3 Flying Training School, Grantham. August 17, 1933.
No. 1 (Fighter) Sq. September 7, 1933.
No. 207 (Bomber) Sq. October 12, 1933.
No. 502 (Ulster) (Bomber) Sq. November 23, 1933.
North Coates Fifties No. 2 Armament Camp. December 21, 1933.
No. 14 (Bomber) Squadron. January 18, 1934.
Calshot Seaplane Training Squadron. March 15, 1934.
No. 201 (Flying Boat) Sq. (Calshot). April 12, 1934.
Cranwell. June 14, 1934.

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SOME PILOTS OF No. 501 (CITY OF BRISTOL) (BOMBER) SQUADRON : L. to R. F/O. A. W. R. Lawson, Flt. Lt. E. S. Finch, Sgt. G. H. Wright, Flt. Lt. the Hon. H. C. H. Bathurst, Sqd. Ldr. W. Elliot, D.F.C., F/O. A. D. Pickup, F/O. T. N. C. Burrough, F/O. C. D. Griffiths, Flt. Lt. B. A. Hewett (sitting), Flt. Lt. E. R. C. Hobson, D.F.C., and Flt. Lt. F. G. Mogg. (*Flight* Photo.)

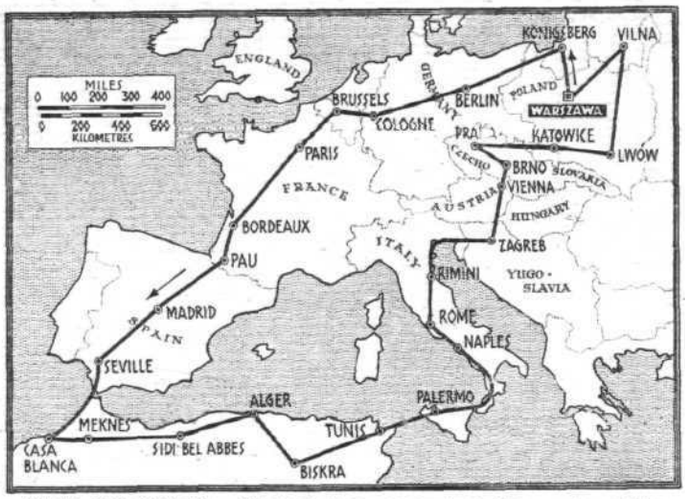
THE INTERNATIONAL TOURING COMPETITION

In the Technical Tests the Polish Defenders are Leading

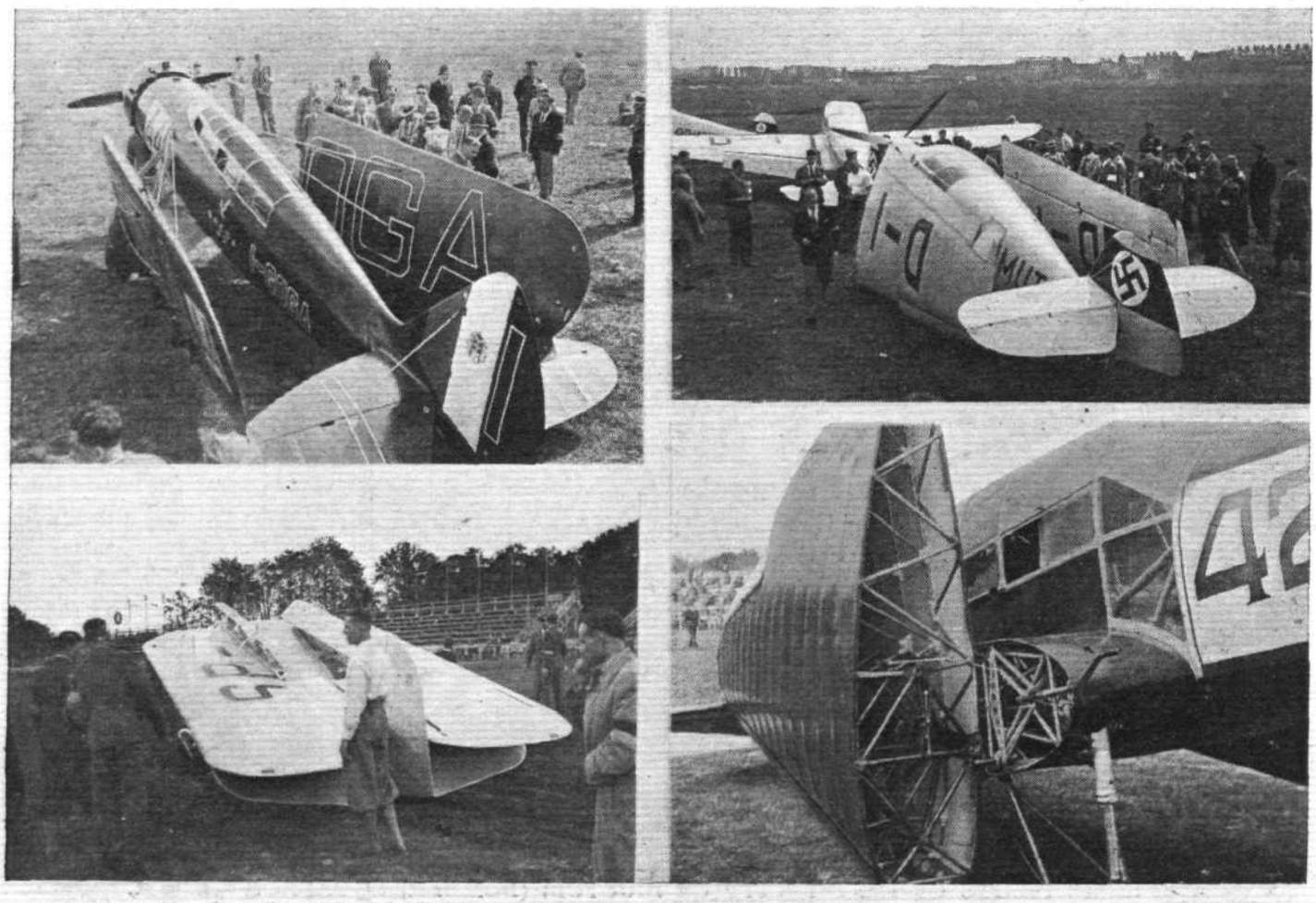
By FRITZ WITTEKIND

AS I mentioned in my first article (see last week's issue of *Flight*), many of the competitors in the International Touring Competition found difficulty in getting their tare weight down to the prescribed limit of 560 kg. (1,234.59 lb.). However, all managed to do it by removing from their machines certain parts and equipment. Some even had to strip off the upholstery. But all those who arrived in Warsaw did manage to get down to the weight, and were duly admitted to the technical tests. Of all the machines taking part, the Italian Bredas were the lightest, with tare weights of 551.9 kg. (1,216.7 lb.) and 553.4 kg. (1,220 lb.) respectively.

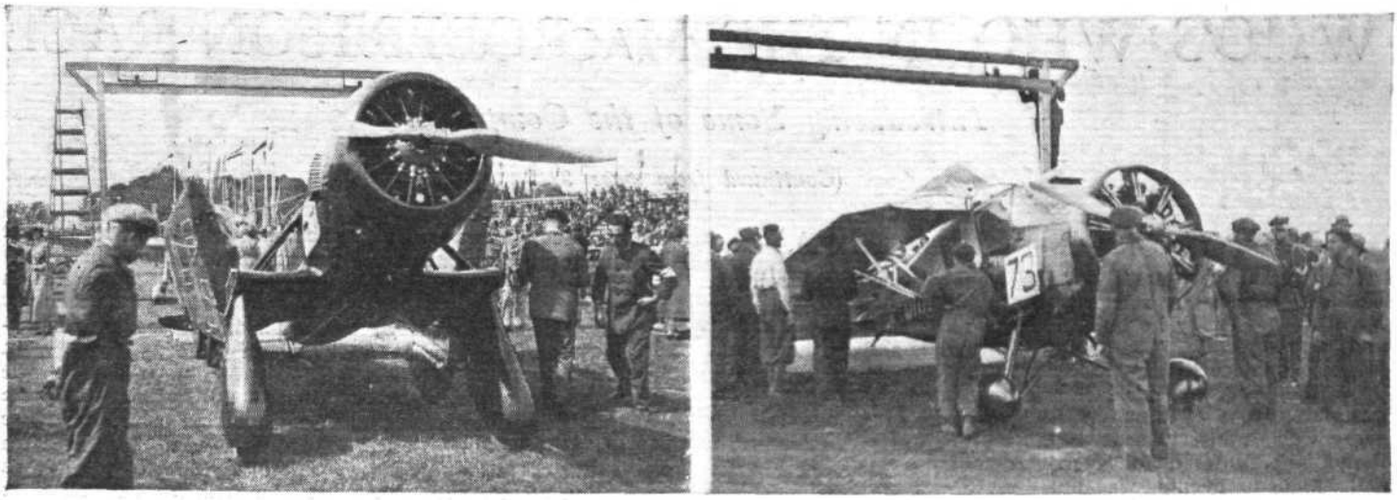
In drawing up the regulations for the award of points for certain technical and practical qualities, the lessons of the 1932 Circuit of Europe were kept well in mind. For instance, the maximum number of points for view from the pilot's seat had been raised from 13 to 50, and for view from the passenger's seat a maximum of 25 points were awarded instead of the 5 points of the 1932 contest. A better scheme had been evolved for judging view. Instead of doing this according to the estimate of the judges, the Aero Club of Poland had this year got out a plan whereby the judging was done in accordance with a definite scheme. In the hangars in which the judging was done, floor, ceiling and walls had been divided into a large number of triangles and rectangles. Electric



THE CIRCUIT: Sketch map showing the route. The outward flight to Algiers was made from September 7 to September 10, and the homeward flight is now in progress, finishing at Warsaw on Saturday.



DURING THE WING-FOLDING TESTS: The upper left-hand picture shows the Breda BA 42, the right-hand photograph one of the B.F.W.-108's. In the lower left-hand corner is seen one of the R.W.D.-9's, with horizontal folding, and on the right, one of the Italian Bergamaschi machines.



"THROUGH THE GATE": On the left a Breda-42, and on the right an R.W.D.-9.

lamps, suspended at the points in the cabin where the eyes of the pilot and passenger would be, threw shadows on the ceiling, walls and floor, while the areas visible to the crew of the machine were, of course, illuminated, and the total area of view could be calculated. While not perfect, this scheme was a great improvement on previous haphazard methods.

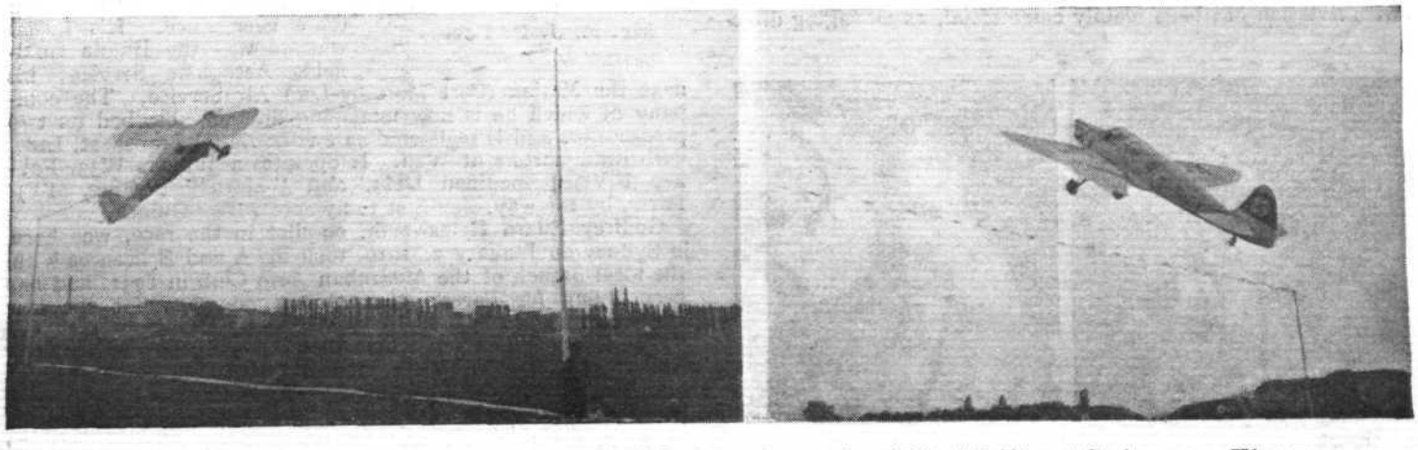
Points were also awarded for slotted wings, metal construction, good arrangement of the instruments, dual control, type of undercarriage, comfort of seats, and so forth. In this respect the German competitors did very well. For example, Brindlinger, Osterkamp and Junck, on B.F.W. machines with Hirth engines, were awarded 452 and 451 points respectively, while Francke on an Argus-engined B.F.W. received 450 points. The two Italian Bergamaschi machines were awarded 438 points, and the two German Fieseler monoplanes 431 points each. The two Czech Aero monoplanes received 429 points each.

Some interesting results were obtained in the low-speed tests. For these, the machines were flown over a course 800 metres (875 yards) long, and had to remain at a constant altitude. Points were awarded for every km/h below 75 km/h (46.6 m.p.h.). The tests proved that with modern slotted wings even fairly heavily-loaded aeroplanes can fly very slowly. The Polish pilot Bajan, flying an R.W.D. monoplane with Skoda engine, put up the slowest flying, with a speed of only 54.14 km/h (33.64 m.p.h.). The two Czech pilots Anderle and Ambruz, on R.W.D. and Aero respectively, flew at 34.32 m.p.h. and 34.73 m.p.h. Of the German competitors Wolfgang Stein, on a Klemm with Hirth engine, flew at 35.84 m.p.h. The Italian pilot Colombo did not succeed in flying slower than 46.6 m.p.h., and thus did not receive any points in this test.

Of the value of the take-off and landing tests one may have different opinions. One thing is certain: they have not hindered progress, and a few years ago these stalled performances would not have been possible. It is, of course, rarely in real life that such landings and take-offs are necessary, but the tests show that when it does happen, the modern machine can be landed in and flown out of a very small space. It must thus be accounted a very fine performance when Francke, on a B.F.W.-Argus, took off over the 8 m. (26.2 ft.) obstacle in a distance of 50 m. (54.7 yards). Seidemann on a Hirth-engined Fieseler took 75 m. (82 yards).

The fuel consumption tests were flown over a triangular course of 600 km. (373 miles). The maximum consumption had been fixed at 20 kg./100 km. This corresponds, in English units, to 0.71 lb. per mile, or 71 lb. per 100 miles. All competitors with one exception completed this test and its condition. The exception was the Italian pilot Vincenzi, on a Bergamaschi, who had to make a forced landing on the way, and damaged his machine so that he had to retire from the contest, thereby reducing the number of machines starting on the Circuit of Europe to 32. Best in the fuel consumption tests were the B.F.W. pilots Francke and Junck, who got their petrol consumptions down to 10.5 kg. (23.15 lb.) and 11 kg. (24.25 lb.) respectively for the 100 km. (62.14 miles).

At the end of the technical tests, the Polish defenders were holding the lead, with Bajan (R.W.D.-Skoda) having scored 994 points, and his compatriots Karpinski and Plonczynski on similar machines holding 954 and 953 points respectively. Fourth place is held by Seidemann on a Fieseler (Argus engine) with 939 points. Other points were scored in the technical tests as follows: Hubrich (Fieseler-Hirth) 936, Buczynski (R.W.D.-Skoda) 920, Florjanowicz (R.W.D.-Walter) 919, Ambruz (Aero-Walter) and Anderle (R.W.D.-Walter) each 915, Wolf Hirth (B.F.W.-Hirth) 914.



OVER THE TAPE: Florjanowicz on an R.W.D.-9, and, on the right, Wolfgang Stein, on a Klemm.

WHO'S WHO IN THE MACROBERTSON RACE

Introducing Some of the Competitors

(*Continued from page 918*)

Racing No. 48.—R. A. Hosler (U.S.A.)

"Airmindedly yours" (as he signs himself) Russell A Hosler was born in 1902 at Huntingdon, Indiana—with the Right Idea. At 17 he built his first airplane on Pop's farm! and, if you please, "learned to fly on this ship without professional instruction." Since then he has flown 7,380 hr., probably more. In his latest letter, dated August 25, Russ complains that "things have been sort of going slow in every way"; his "Hosler B" monoplane, entered for speed and handicap events, was not yet completed and little could be said about it, except that it is a "flying-wing" plane of high-wing type; wing area about 225 sq. ft.; of very clean design; internally braced in all parts, and with retractile undercarriage. Its engine is a 500 h.p. Curtiss-Wright D12, water-cooled, 12-cyl. "V." And he hopes to have a lot of news for us later.

Mr. R. A. Hosler.

Hosler obtained his sporting licence in 1925 and transport licence in 1928. He was for three years test pilot with the Woodson Co. (Bryan, Ohio), and later with Sikorsky, whose transatlantic type landplanes he test-flew and helped to construct. From 1929 till 1931 he operated taxi services at Toledo and Detroit. In the last four years he has rarely missed a national air race. For the 1923 American Air Derby he designed and built his own entry. One of its features was a single-wheel landing gear.

Racing No. 60.—J. D. Hewett and C. E. Kay (New Zealand)

These two New Zealanders, who arrived in London on August 24, are no strangers to the Old Country. Both have served with the R.A.F.

James Duff Hewett was born on January 18, 1891, in a near-Auckland district which is spelt Kihikihi and pronounced "Kee-kee" to avoid confusion with *kai kai*, which is Maori for "food." The R.Ae.C. gave him its certificate in June, 1916, two months after his transfer into the R.F.C. Whilst serving in France with Nos. 4 and 23 Squadrons he was awarded the C. de G. Post-war he put in a year with No. 20 Squadron on the Indian North-West Frontier. Thence, with rank of Sqd. Ldr., back to New Zealand. One of Hewett's brother officers in No. 23 was "2nd Lieut. C. K. Smith," nowadays better known as Air Com. Sir Charles Kingsford Smith.

In 1924 Hewett joined the N.Z.A.F., of which he is still a member. Since 1927, when he bought one of the first "Moths" seen in the Dominion (a "Gipsy I"), his connection with aviation has been mainly commercial, as managing director of Falcon Airways, Ltd., Auckland, which has its private aerodrome at Oraki. Hewett has flown some 4,000 hr. Now in his 44th year, he is perhaps senior to every competitor in the race.

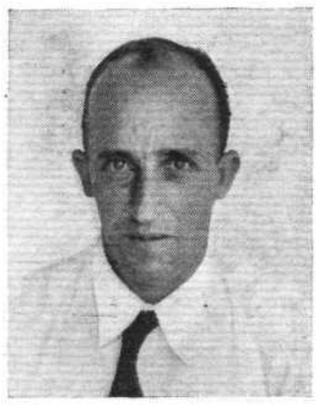
Cyril Eyton Kay, Hewett's co-pilot, is also his fellow-citizen. He was born at Auckland on June 25, 1902. In 1925 he obtained a Short-Service commission (F/O.) in the R.A.F., and was sent from England to Egypt, where he promptly developed enteric and was invalided back after three months in hospital. Between 1926 and 1929 he was with No. 5 F.T.S. (Sealand), No. 2 Squadron (Manston), and, as navigation officer, with No. 26 at Catterick, after a course at Calshot.

In 1929, with F/O. Harold Piper, Kay obtained special leave and flew from London to Sydney in a Desoutter I monoplane. The flight was interrupted for three weeks by a forced landing on the island of Western Baronga, off Burma. Returning to England in 1930, Kay took an Instructor's course at the C.F.S. (Wittering), and was posted, until the end of 1931, as instructor to No. 2 F.T.S. (Digby). He then left the Service, but remained in England until the end of 1932 as demonstration pilot with a commercial company. In 1931 he visited the Wasserkuppe and achieved the distinction of being the first Britisher to secure the "C" gliding certificate. During the last two years he has continued civil flying in New Zealand. Both he and Hewett are married. Delivery of the "Dragon Six" now being built for them at Stag Lane is promised for the end of the month.

Mr. C. E. Kay and Sqd. Ldr. J. D. Hewett.

Racing No. 35.—R. J. P. Parer and G. E. Hemsworth (New Guinea)

Raymond John Paul Parer was born in Melbourne on February 18, 1894. Early in 1916 he was transferred from A.F.C. to R.F.C. and served in the Central Despatch Pool until the end of 1919, when, as previously narrated, he teamed-up with the late Lieut. J. C. McIntosh and made the second flight from England to Australia. Parer corrects the statement in *Flight* (August 30) that the journey occupied six months. It was eight!



Mr. R. J. P. Parer.

On return to Melbourne in 1920 he engaged in various joy-riding and semi-commercial aviation enterprises until 1926, his most notable exploit during that period being the first passenger flight from Melbourne across the Bass Strait to Tasmania and back (in a DH4). This route is now operated as a Government subsidised service.

In 1926 he took the DH4 to New Guinea and has remained there ever since. His initial venture was the Bulolo Goldfields Aeroplane Service; his next the Marlae (Port Moresby-Lae) Air Service. The company of which he is now managing director absorbed its two predecessors and is registered as Pacific Aerial Transport, Ltd., with headquarters at Wau. It operates a Junkers W33, Fokker F.VIIa, modified DH9, and "Moth" ("Gipsy I"). Parer, by the way, was first to fly across New Guinea.

Godfrey Ellard Hemsworth, co-pilot in the race, was born in Sydney on January 2, 1910, took his A and B licences with the local branch of the Australian Aero Club in 1931, and has been flying for Parer's New Guinea company for the last three years.

The Fairey "Fox" in which they are competing was bought from the Hon. Mrs. Victor Bruce. It is being modified at Hanworth by W. S. Shackleton, who has cleaned it up very prettily and expects to complete the job before the end of September.

Parer and Hemsworth arrived in England from New Guinea

on August 6, breaking the journey at Singapore. Parer affirms that this will be his last race. Now in his forties, he plans to settle down. The lady responsible for this decision lives in Bradford.

Racing No. 31—H. L. Brook, and — ? (England)

And speaking of Bradford, here is Harold Leslie Brook, who was born there in 1897, and now resides in Harrogate. He joined the R.F.A. on August 20, 1914, at the age of 16, obtained his commission soon afterwards, and, despite a couple of wounds, served five years in France and India. Restored

Mr. H. L. Brook.

Miss Ruth Nichols.

to his family, he remained a normal civilian until Yorkshire began to build and fly sailplanes and gliders. These occupations kept him mildly diverted until the approach of his 37th birthday. Then he began to yearn for horse-power. The York County Aviation Club at Sherburn-in-Elmet offered a likely fulfilment of this secret ambition. So, in August, 1933, Brook placed himself in the hands of Instructor Cudemore, and after four hours' instruction became a soloist with serious designs on the MacRobertson Handicap, for which Phillips and Powis have built him the first of their Miles "Falcons."

What happened between last autumn and this spring is now almost historic. Brook bought the "Puss Moth" (*Heart's Content*) in which the Mollisons had crossed the Atlantic, and, with a total of 43 hr. in his logbook, pushed off solo from Lympne to survey the route to Melbourne. That was on March 28, 1934, at 5.20 a.m. By noon the incident had closed. Describing it a few days later Brook said that, while flying through very dirty weather over France, he was forced down from 12,000 ft. by ice formation on the wings, and, before he knew how or why, the side of an unsuspected mountain was rushing up at him out of the murk. Guided by some uncanny sixth sense, he brought off a bloodless landing on the mountain proper. The scene of this epic of the air was Genolhac, in the Cevennes. With some local help he salvaged the "Gipsy Major," brought it back to England, and has had it installed in *Heart's Content II*.

Brook's next attempt on the Australian record will not be solo. If expectations are realised, he will be accompanied by two lady passengers.

Racing No. 49.—Miss Ruth R. Nichols (U.S.A.)

Miss Nichols, writing from New York on August 23, says that, while it is highly improbable that she will fly the "Altair" entered in her name, there is a remote chance of her joining the crew of another entry. She adds: "If ultimately my plans include the race, I shall be glad to advise you accordingly."

Miss Nichols is the second woman to receive the U.S. Department of Commerce transport licence, and one of the few to hold its ground engineer's licence, of which only four have been granted. She also holds the first F.A.I. international hydroplane licence for women.

A singularly competent aviatrix, Miss Nichols commenced flying in 1922. Having taken her B.A. degree at Wellesley College, New York, in 1924, and been appointed head of "sales promotion" to the Fairchild Aviation Corporation, she piloted, in 1929, a 12,000-mile tour of the United States. In 1931 she held three world records simultaneously (for women): altitude (28,743 ft., March 6), speed (210.65 m.p.h., April 13), and distance (1,977.6 miles); this last was set up on October 24-25 from Oakland, Cal., to Louisville, Kentucky. Later she added the West-East transcontinental record of 13 hr. 21 min., and was awarded the 1931 U.S.A. championship by the *Ligue Internationale des Aviateurs*. Incidentally, she is the first woman to pilot a regular passenger air line. In December, 1932, Miss Nichols became air traffic manager and reserve pilot of New York-New England Airlines. In the same year she made a 3,000-mile "good-will" tour as representative, or "Air Ambassadress," of the National Council of Women.

Miss Nichols' varied career includes the following minor activities: First non-stop New York to Miami, foundation member of Aviation Country Clubs, founder and editor of *The Sportsman Pilot*, and competitor in the first Women's Transcontinental Air Derby. As an interesting lecturer on aviation topics she is known throughout the United States, and unsolicited testimonials descend upon her in a glittering shower.

Latest Race News

The Northrop machine nominated by Miss Jacqueline Cochran is a two-seater cabin monoplane with a Curtiss "Super Conqueror" SGD-1570 F.-4.S. supercharged liquid-cooled engine. The standard "Super Conqueror" gives 600 h.p. up to 12,000 ft., and 750 h.p. at sea level. Miss Cochran, who will fly in the machine throughout the race, will employ two pilots, Wesley Smith and Royal Leonard, the latter being stationed at Allahabad, and taking over the machine from Wesley Smith at that point. Miss Cochran and her pilots have taken a special course of instruction in navigation under a leading expert in the United States. They have compiled a series of tables for obtaining results quickly when taking sights by two sextants of new design, one manufactured by the Pioneer Instrument Co. The Northrop Co. are said to be confident that the machine will cruise at least at 250 m.p.h. at an altitude of over 20,000 ft. Mr. Wesley Smith has already flown to Australia to make observations.

A Change of Pilot

The Manawatu Aero Club, New Zealand, has notified the Air Race Committee of its substitution of another pilot for Major G. A. C. Cowper. The substitute, whose name has not yet been ascertained in England, will arrive here on September 20. The entry is a Miles Hawk ("Gipsy III").

Mr. L. V Chandi, the only Indian entrant, is reported to have abandoned the idea of taking part in the race because his pilot, Mr. A. A. Murad, is unable to obtain leave.

Although Short Bros. have received no order or instructions from Mr. Wallace, who has entered a "Scion," this gentleman has sailed for England with the apparent intention of participating in the race.

We hear from America that the T. W. A. Douglas D.C.2, nominated by Mr. Harold Gattv, will not compete, the manufacturers and T.W.A. having changed their minds after entering the machine. It appears also that the chief engineer of K.L.M. has cabled from America that the Douglas nominated by K.L.M. for the speed race will not be able to compete.

Entertaining the Competitors

The Royal Aero Club invites subscriptions to a Hospitality Fund, which has been organised for the entertainment of competitors in the England-Australia races. Subscriptions should be sent to the Secretary, The Royal Aero Club, 119, Piccadilly, W.1, at the earliest possible date.

A banquet, the object of which is to welcome and entertain all pilots taking part in the races, will be held by the Royal Aero Club at Grosvenor House, Park Lane, on Friday, October 12th, 1934, at 8 p.m. The price of tickets exclusive of wines is one guinea. Members may bring guests, including ladies.

MACROBERTSON
ENGLAND-AUSTRALIA AIR RACE
October 20—November 4

PRIZES:

Speed Race: 1st. £10,000 and Gold Cup; 2nd, £1,500; 3rd, £500.
Handicap Race 1st, £2,000; 2nd, £1,000

Sixty-four entries representing fourteen nations

Start: Mildenhall Finish: Melbourne.

Control points (Handicap Race in italics):—*Marseilles, Rome, Athens, Aleppo, Baghdad, Bushire, Karachi, Jodhpur, Allahabad, Calcutta, Rangoon, Bangkok, Alor Star,* Singapore, *Batavia, Rambang, Koepang,* Darwin, *Newcastle Waters Cloncarry* Charleville and *Narrowmine.*

Total Distance (Great Circle):—11,333 miles.

THE FOUR WINDS

ITEMS OF INTEREST FROM ALL QUARTERS

Melbourne-Hobart Race

Sir Macpherson Robertson has agreed to provide a sum of money as a prize for the proposed Melbourne-Hobart race to be held during the Melbourne Centenary Celebrations.

The Revelation

A reader vouches for the truth of this remark, overheard in an express electric train between London and Brighton; it was made by a woman passenger who was watching a throttled-back "Moth" keeping station with the train: "Fancy that! I had no idea those little ones could go as fast as this!"

"Stop Thief!"

The other week the Polish authorities at Warsaw asked officials of foreign aerodromes to watch for a stolen Polish aeroplane. It appears that a former N.C.O of the Polish Flying Corps took off in the aeroplane from Warsaw without authority.

Twenty-five Years Ago

From "Flight" of September 11, 1909.

"By way of adding to the attractions of their Exhibition, the authorities of Nancy made a lucrative offer to M. Sommer to carry out some flights. This he accepted, and has magnanimously decided to devote the surplus of his salary, after paying expenses, to the poor of Nancy and of his birthplace. . . . On Monday the weather was against flying, but a large number of people were, nevertheless, admitted to the grounds. Considerable commotion ensued upon the announcement that M. Sommer would not fly. The situation began to look serious, as some of the crowd threatened to break down the sheds and fences, but M. Sommer generously came to the rescue of the authorities. A lull in the wind provided a chance of a flight, of which he took instant advantage, flying once round the ground, and thus the spectators were appeased and retired in orderly fashion."

NOT A DEEP-SEA DIVER! We have already referred to the special flying suit which Wiley Post will wear for flights into the stratosphere. Above are two such suits, that on the right containing, in addition to air from the supercharger, Wiley Post himself.

Non-stop Across Australia

Sir Charles Kingsford-Smith, with his co-pilot, Capt. P. G. Taylor, accomplished a record trans-Australian flight on September 9, when he flew non-stop from Melbourne to Perth in his Lockheed "Altair" in 10 hr. 22 min. His previous time for this flight (in 1928) was 22 hr.

Passenger Glider Trains

The Moscow Glider Works have recently produced a large passenger-carrying glider for use with "aerial trains"—a series of gliders towed by an aeroplane. It is a five-seater cabin glider, designed by the Soviet pilot Groshev, and has a wing span of *18 m* (59 ft.) and weighs about *450 kg* (992 lb.). It is intended to be towed, with similar or smaller gliders, by a P.5 type aeroplane at a calculated speed of *150-170 km/h* (93-105 m.p.h.). Under suitable wind conditions it can be flown without the aid of an aeroplane.

Planet News

A Non-stop Flight to India

On September 21 Sir Alan Cobham and Sqd. Ldr. Helmore propose to attempt a non-stop flight, refuelling in the air, from Portsmouth to Karachi. They will fly an Airspeed "Courier" (Armstrong Siddeley "Lynx"), and the first refuelling will take place immediately after leaving Portsmouth (at dawn), the second at Malta (in the evening), the third (at dawn the next day) at Alexandria (Aboukir), and the fourth (in the evening) at Basra (Shaibah). These last refuellings will be carried out by personnel of the Royal Air Force. Wireless will not be carried, and the flight must, therefore, be run strictly to schedule in order that contact may be made with the refuelling aircraft. One of Sir Alan's Handley Page W 10s has left for Malta to act as tanker. Karachi should be reached at dawn on the third day. Financial assistance for preliminary experiments in refuelling in the air has been given by Lord Wakefield.

A GLIDER PASSENGER COACH: The latest Soviet GN-4 glider designed for use with "aerial trains." It has a cabin seating five passengers.

EXTRAORDINARY: Apparently a development of the "Aircruiser," this latest Bellanca product is a bomber built for the Colombian Government. The all-up weight is 15,000 lb. and the top speed, on the power of two 750 h.p. engines driving adjustable pitch airscrews, is 190 m.p.h. The machine may be fitted with floats and be used as an ambulance.

Aged Inmates Fly

Twenty-four men and women, aged from 58 to 74 years, from the Liverpool Public Assistance Committee's Homes, were taken for a flight over the city on September 5.

Hot Air Balloon

Using hot air instead of gas, a balloon constructed by Doctor Bruenner, an Austrian engineer, reached a height of 2,500 ft. at Eberswalde on August 21. The air is kept warm by an oil-fed apparatus in the gondola.

Grierson's Mishap

Mr. John Grierson, who recently flew from England to Canada *via* the Arctic Air Route, met with a mishap while making a test flight in his "Fox Moth" seaplane on the Ottawa River on September 6, when the machine was slightly damaged while alighting on the water. It is reported that he intends fitting wheels to his machine and flying on to New York.

Air Collision Over Naples

Two civilian aeroplanes collided when flying over the outskirts of Naples on September 6. The pilot of one of the machines, Ricardo Monaco, managed to escape by means of his parachute, but the other crashed, with his machine, on to the roof of a large building, and was killed. Monaco's aeroplane fell on the dome of a church, doing considerable damage, and then fell on to two women, one being killed and the other injured

The Ellsworth Expedition

Mr. Lincoln Ellsworth has arrived in New Zealand and will sail for the Antarctic towards the end of the month. His Northrop "Gamma," which was damaged in the ice early this year, has been repaired, and he intends this time to fly from Deception Island, 600 miles south of Cape Horn, across the Antarctic Continent from the Weddell Sea to the Ross Sea, where he will establish a camp and await the arrival of his motorship *Wyatt Earp*.

Soviet Stratosphere Flight Fails

An attempt at a new flight into the Stratosphere failed at Moscow on September 6, when the *50 000 m*³ balloon exploded before the gondola left the ground. Nobody was seriously injured.

American World Flight

Dr. Richard Light (or Leight—we are still in the dark as to the correct spelling!), who is making a world flight in his Bellanca seaplane, alighted in Kirkwell Bay, Orkney, on September 6, after a successful crossing from Iceland. In the afternoon he went on to Edinburgh to see friends before proceeding to Rochester.

Soviet Balloon 14 Miles Up

A radio-controlled balloon recently sent up from the icebreaker *Yermak* in the Arctic by M. Kichev, a worker of the Soviet Institute of Aeronautics, attained a record altitude of *23 000 m* (about 14¼ miles). At an altitude of *9 000 m* the temperature registered 47 degrees below zero. The temperature gradually rose with the rise in altitude until it was 34 degrees below zero.

An Autogiro Over the Antarctic

On September 4 William M'Cormic made a flight in the Autogiro from the Byrd Expedition's base at Little America. He rose, almost vertically, to 7 200 ft., and observed that beyond the Bay of Whales the Ross Sea was open. New ice surrounding the Bay of Whales ended about half a mile beyond West Cape, and it is therefore assumed that the Ross Sea is *not* closed during the winter, as generally believed.

COALS TO NEWCASTLE: One of the two Autogiros which are being delivered to Barcelona, Spain, for use in the Spanish Navy by pilots G. Guardia and A. Guilian. (*Flight* Photo.)

Diary of Forthcoming Events

Club Secretaries and others are invited to send particulars of important fixtures for inclusion in this list.

Aug. 28-Sept. 16. International Touring Competition, Poland.
Sept. 15. Herts and Essex "Aerofête" at Broxbourne.
Sept. 16. Reading Aero Club "At Home."
Sept. 22. Norfolk and Norwich Aero Club Garden Party, Norwich.
Sept. 29. Leicestershire Aero Club "At Home."
Oct. 6. London to Cardiff Air Race and Cardiff Ae.C. Garden Party
Oct. 7 Aviation Golf Meeting, Royal Porthcawl Golf Club Porthcawl.
Oct. 12. Banquet to MacRobertson Race Pilots, Grosvenor House, Park Lane, 8 p.m.
Oct. 20. England-Australia Race for MacRobertson Prize. Start at Mildenhall.
Nov. 16-Dec. 2. 14th International Aviation Exhibition, Grand Palais des Champs-Elysees, Paris.

THE DOVE "CLOUDRING"

A simple Gyroscopic Instrument which makes "blind" flying easy

EXISTING gyroscopic instruments are either of the free gyro type indicating angular displacements by deviation from some datum (such as artificial horizons) or of the restrained gyro type which indicate rate of angular displacement (e.g., the turn indicator). Each has its particular sphere of utility, but are expensive.

In the Dove "Cloudring," many of the virtues of both classes of instrument are combined, and its simplicity results in a price which should make it the cheapest of insurance policies for bad-weather flying. Its use, moreover, is so simple as practically to require no learning.

Although no very profound gyroscopic theory is involved, the operation of the "Cloudring" is not easily explained; the following, however, gives an idea of the underlying principles and of the phenomena utilised in operation.

The instrument comprises a rotor, directly wind-driven and exposed, like some meteorological anemometers, so that the relative wind strikes it tangentially. Balls near a rim act both as mass and rotor vanes. The rotor spins on a bearing which is universally pivoted through about 45 degrees on a fixed spindle. The base of the instrument forms a wind-shield, and also presents a calibrated scale. Its weight is about 1½ lb. A simple collar device slides on the spindle (when a string is pulled by the pilot) to centralise the rotor after undesired disturbance.

How it Works

Briefly, what happens is this: In straight flight the wind past the aircraft, coming from dead ahead, strikes the upper exposed balls, and spins the rotor. When running, the balls practically disappear, but the rim remains visible, and can be positioned relative to a lubberline on the inside of the shield. If the aircraft be yawed, neglecting for a moment the change in relative wind direction, the rotor stays in its original plane of rotation from which the axis of the fuselage has now diverged. Thus, a direct indication of the angle of yaw is apparent, the lubberline having departed from the rim of the rotor. The rotor has a slow rate of recovery, so a yaw is observable many minutes after it has occurred. Thus, a lapse of concentration by the pilot may be made good minutes after it has occurred. After this yaw has taken place, if it remains uncorrected the rotor plane is at an angle to the new direction of wind past the aircraft. The wind thus strikes the upper part of the rotor somewhat obliquely as well as tangentially, and more towards its leading sector than its rearward sector. A component, therefore, exists tending to tilt the rotor "bankwise" and yaw it. The rotor will obey this component to a degree depending on its magnitude and direction, so that the side wind (relative to the rotor) sets up an indication of bank. Due to precession of the gyro under this "bank" component, the rotor will also yaw somewhat. Consequently, if after a lapse of time a yaw of the aircraft from one course to another is observed by the pilot, and he corrects it by returning the lubberline to the rim of the rotor, the rotor will be found to be banked towards that side to which he should bank to regain his original course, and, moreover, his original track through the air. Neglecting wind over the ground, the instrument, therefore, tends to return the pilot always to his chosen track as well as to his chosen course. It would hardly be expected that this return to track is complete, for there are slight losses going on over the whole period of time, and this track-finding virtue only arrives if a considerable lapse of time occurs between the initial yaw and its first correction. In flight it is quite astounding to find oneself being gradually directed not only back to the course but also back to the actual track.

The instrument operates in a kindred way in respect of bank. If the pilot, by inadvertence, flies with a wing down, the relative wind component set up by continued sideslip precesses the rotor to a tilt away from the side-wind; consequently, the pilot is not only afforded that indication of bank which is due to the angle between the lubberline and the vertical plane in which the rotor originally spun, but this angle is exaggerated by the rotor (after a time lapse), so that the pilot will somewhat over-correct, which tends to sideslip him back towards that original track from which he departed by sideslip.

Shortly, (*a*) a yaw or turn is immediately apparent both as to direction and magnitude; if this yaw is left uncorrected for a period of time, a corrective indication creeps in, tending to bring the pilot back to the original air track.

(*b*) A bank, or "wing-down," flight is immediately apparent both as to direction and magnitude; if this bank is left uncorrected for a period of time, a corrective indication tends to bring the pilot back to his air track.

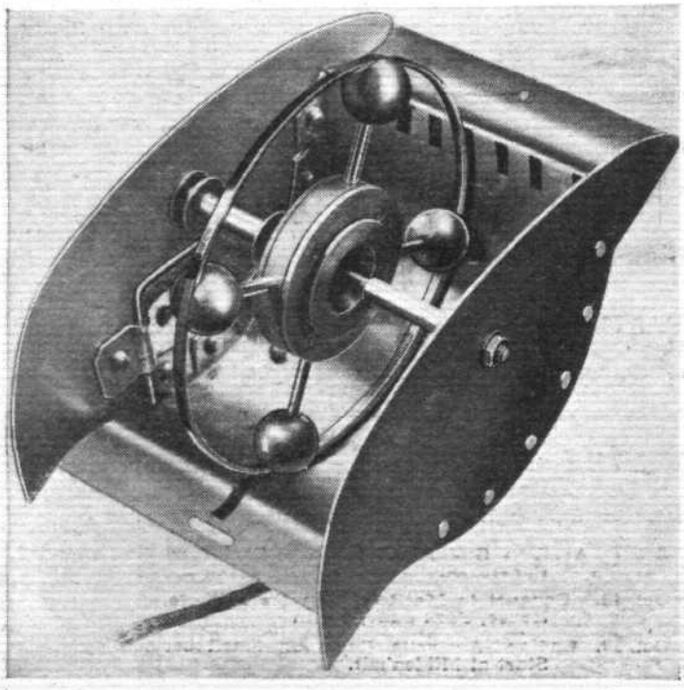


Fig. 1. The Dove "Cloudring" from above. (*Flight* Photo.)

A Test in the Air

It is absolutely easy to fly straight and laterally level by the use of the instrument. Using it on a Blackburn B.2 Trainer, the writer at first attempt held a "blind" compass course (with undetectable inaccuracy) for over ten minutes. Only very occasional reference to the compass is therefore necessary. The instrument being well ahead of the pilot and in front of the windscreen, it lies in the ordinary zone of vigilant look-out, which is a very great advantage in thick weather, and one reducing fatigue.

In manœuvre the instrument keeps faithfully to performance up to 45 degrees change of bank or course. When this limit is reached, the locking of its universal mounting causes the rotor to topple, but it does so slowly, and not hysterically. This is of enormous advantage, because no difficulty was found in recovering from a spin either right or left. It is desired to emphasise that this, a free gyro instrument, can be used directly and normally for spin recovery. It was only necessary to rudder until the rotor registered with the lubberline (and this stopped the spin) and then to square off the lateral level.

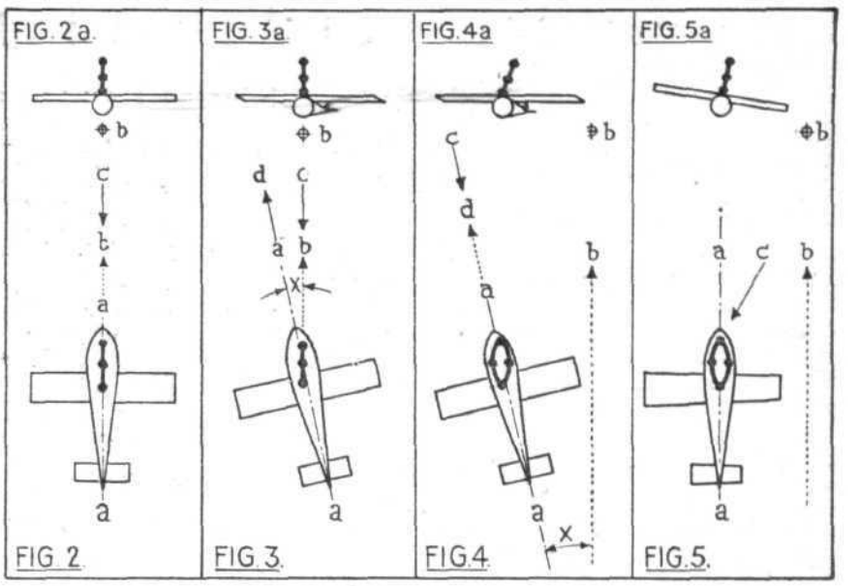
It was found easy to use the instrument for change of course. To turn from E. to N. with an accuracy of less than 5 degrees took about 15 sec., and simply depended on the coarseness of control used. The instrument enables turns of at least 30 degrees in azimuth to be made; so

three such turns, with a pause for re-erection of the rotor by means of the string device between each, is the sole requirement.

A slight error is noticeable during a steep climb; this is due to a change in the direction of the slipstream at high angles. The instrument is admitted to be sensitive to small changes of direction of airflow, and for this reason it will have to be carefully placed on any given type of aircraft and tested in the air before final positioning. The inventor proposes a simple adjustment in the securing means to meet cases of difficulty.

Mechanically, there is virtually nothing to go wrong. It is inconceivable that frost or snow can adversely affect the bearing, which is well protected as well as being shielded; the construction is robust, running speed low, and spinning moment high, so bearings need not be made with extreme delicacy. The rotor must, of course, be critically balanced, but this is easy in view of the construction.

The instrument is unaffected by bumps or accelerations. In bumpy weather those movements of the aeroplane which happen unnoticed or are subconsciously corrected, are perceptible by the instrument, but do not induce over-correction in the way that a sensitive turn indicator may do.



Figs. 2 to 5. These diagrams, studied with the text, explain the working of the "Cloudring."

The Diagrammatic Explanation

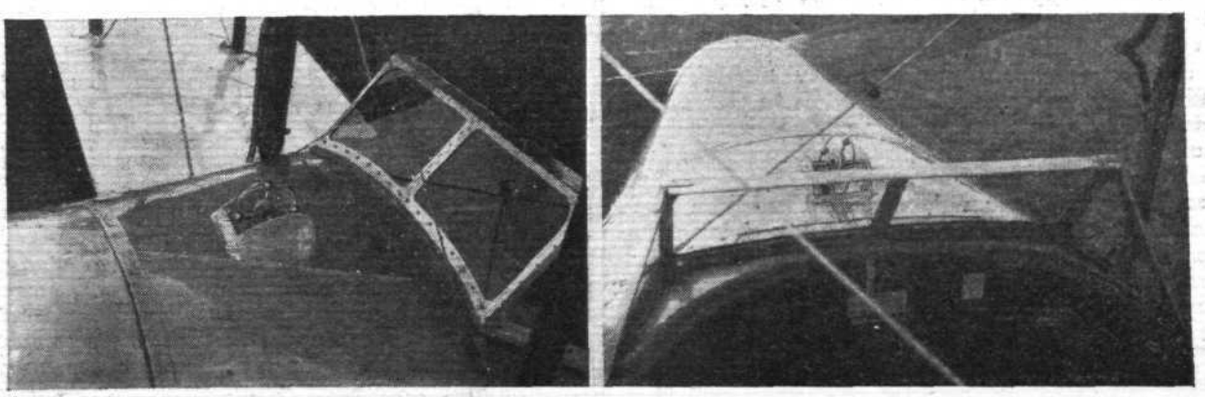
It may be useful to describe the basic function of the "Cloudring" diagrammatically. In Fig. 2 can be seen a plan diagram showing the fuselage with its axis *a* on an intended course *b*, and the line *b* is also the airtrack; the arrow *c* shows the relative wind direction. Fig. 2a represents a view from ahead of the aircraft of Fig. 2, showing lateral level and vertical "Cloudring" over the airtrack *b*. Fig. 3 shows the fuselage and relative position of the rotor in plan just after a yaw to port. Fig. 3a shows the ahead view eyed along the line *b*, the rotor still vertical, but the fuselage yawed. At this movement the c.g. of the aircraft is still on the airtrack line *b*, but the course *d* is altered by the angle of X to port. The rotor is still vertical in plane and in the line *b*. If the pilot corrects the yaw, practically immediately the condition of Fig. 2 is applied with an inconsiderable lateral displacement to port from *b*.

Assuming a human delay of about 20 sec., the condition of Fig. 3 develops to that of Figs. 4 and 4a in which the aeroplane is off on its new course *d*, the relative wind *c* is now again from ahead of the aeroplane, but oblique to the rotor plane. The rotor is being precessed so as to indicate as if the left wing were down as well as to show yaw to port by angle X. In correcting by the invariable method of lining up the plane of the rotor with the lubberline, the pilot rudders right (which yaws him back through angle X), and, of course, checks yaw when correct; he also banks right, so that he now flies straight but right wing low. He is flying parallel to *b*, but to the left of it, as shown in Figs. 5 and 5a. His sideslip to the right brings him back towards airtrack *b*. At this phase, however, owing to sideslip, the relative wind *c* is oblique from the right. This reprecesses the rotor, tilting its upper part from the right so, progressively, he raises his right wing again. By the time he is straight and level he will be much nearer his airtrack *b* than if he merely corrected the yaw X and thereafter held straight and level.

Similar representation can be built up showing the innumerable combinations with which the "Cloudring" will cope. From personal test the writer can say that the whole procedure is absolutely simple and natural; the result is as good as with any other instrument or combination he has ever used or tested, and the technique required is of the simplest. More can be accomplished than with either free or restrained gyro instruments. A really useful future is predicted for this extraordinarily ingenious, simple, and precise indicator. As tested, the "Cloudring" was arranged to indicate in yaw and roll. It may, of course, be adapted for indication of pitch and roll, in which case the rotor would be in the horizontal plane.

A Note on the Inventor

Commander J. S. Dove, R.N., achieved distinction in the Navy for his work in connection with instruments, particularly those of a gyroscopic character. Since his retirement he has devoted his time to the development of instruments for aircraft and this week we are able to publish the first full description of the Dove "Cloudring." From our own experience we do not hesitate to say that this is the simplest instrument of its kind, both in construction and operation, which is available. A large demand for it seems inevitable and all enquiries should be addressed to Com. Dove at 173, Uxbridge Road, Hanworth, Middlesex. (Feltham 453.)



Two views of the "Cloudring" installed on a Blackburn B-2 Trainer. It is placed where the pilot can see it without discomfort, even in bad weather. (*Flight* Photos.)

PRIVATE FLYING

A SECTION FOR OWNER-PILOTS AND CLUB MEMBERS

NOTES
by
LORD SEMPILL
A.F.C., F.R.Ae.S.

THE Report on the Progress of Civil Aviation annually issued by The Department of Civil Aviation, has made a rather more belated appearance this year than usual. This would appear, however, to be inevitable in view of the difficulty of collating world statistics on flying generally.

The figures given for the year 1933 are illuminating, and whilst they serve to show the advance made by other countries in regular air transport services, they give also a welcome indication of the progress being made by British air lines. In this direction, of course, the U.S.A. are far ahead of other nations, and these statistics are eagerly quoted by the pessimists in this country to prove how backward we are as compared with America. This year's Report is, however, encouraging from the British point of view, for comparatively the United Kingdom (including Empire Services) returns show a greater all-round percentage of increase than those of any other nation. Route mileage is up by thirty per cent. over 1932; miles flown by forty-seven per cent.; and passengers carried by sixty-three per cent. Mails and goods carried also show an increase of over fifteen per cent. over the previous year.

Ownership Must Increase

WHEN, however, we come to the question of private flying as reflected by the returns referring to the Government-assisted light aeroplane clubs, the position would appear to be less satisfactory. We have to bear in mind the fact that the figures relating to the seven clubs under the control of National Flying Services, which in previous years have helped substantially to swell the total, have not been included. The reason for this is that these clubs have ceased to receive Government assistance.

There has actually been considerable increases in the number of flying members and also in the number of hours flown. The actual number of assisted club members who qualified for their "A" licence in 1933 exceeded that of 1932 by as much as forty per cent., although the increase in the country generally was only 13.7 per cent. Full statistics relative to private flying are not shown, so that no very complete answer can be given to those who contend that private flying is in reality making very little headway. The Report, in fact, tends to give colour to this viewpoint, for, although 1933 compares well with 1932, there is little relative improvement on 1930 and 1931.

There are those who take a gloomy view, asserting that, whilst the public are taking to the air in increasing numbers as passengers, there is little reason to believe that there is any very keen desire to become pilots or owners of aircraft. At the moment this may be a fairly accurate statement of the position, and it might be interesting briefly to review the reason.

One might say at the outset that any pessimistic outlook is out of place for the sufficient reason that, having once countered the limitations of gravitation, mankind will inevitably continue to use the air. The limiting factors are, therefore, largely technical and economic, and we may take the evolution of the motor car as some guide to the future possibilities.

The fact that the present generation is using air transport in rapidly increasing numbers is a proof that man is quickly adapting himself to the new element. Once a person gains confidence in the capacity of a well-designed and properly controlled aircraft to function safely in this new medium, he will readily orientate himself to the fresh environment. One might go farther and say that he will inevitably desire to take a more active part—in other words he will want to pilot his own aeroplane. Having had experience of the various everyday risks of all forms of transport, who will say that any modern method of travel stands out as safer than another? A person encountering a bad storm or a typhoon on his first voyage may well be excused the momentary declaration that he will keep to dry land in future. But this does not prevent him from booking a sea passage the very next time this becomes necessary, because he knows that maritime services have been built up on sound experience and have become an essential part of our life.

A very prominent public man who recently performed the opening ceremony of a new civil aerodrome frankly stated that he had never flown, and that no consideration whatever would induce him to leave the ground in an aeroplane. This is by no means an uncommon attitude, but it would be safe to say that, once he had overcome this initial prejudice and made a flight in pleasant circumstances, his viewpoint would immediately change. One knows a number of keen air passengers who were only urged into the air by an appeal to their pride.

Risk Is Relative

THEN take the potential dangers of the road, which we constantly incur. The car owner, who may scarcely know the function of a sparking plug, will drive on the public roads at speeds of forty miles an hour; he will pass others on a narrow road travelling at the same rate, with but a few feet between the two vehicles, a thousand times a day. A burst tyre or a faulty steering gear may, as it sometimes does, mean an impact between the two cars at eighty miles an hour. Looked at in cold blood in this way surface risks are no less than the worst that may be imagined in the air. Having then once become accustomed to air travel as a passenger nothing but cost and lack of convenience will prevent a rapid increase in the ranks of the owner-pilot.

The staid business man or the lady of advanced years use their mass-produced cars as confidently as the young people their sports models—and laugh at the risks of the road.

When aircraft becomes as readily available and as foolproof, and when ground facilities become comparable with those provided for the motorist, nothing will keep the public out of the air.

AT SUTTON BANK

1934 *B.G.A. Annual Soaring Competitions*

By C. H. LATIMER-NEEDHAM, M.Sc., F.R.Ae.S., Vice-President B.G.A.

BY far the greatest interest during the soaring flight competitions was centred in the thunderstorm flights on Tuesday evening, September 4, when for the first time in this country three sailplanes were able to make contact with, and disappear into, a heavy thunderstorm.

This was the fifth series of annual competitions held by the British Gliding Association, organised this year with the help of the Yorkshire Gliding Club at the Sutton Bank site recently acquired by the B.G.A. Fifteen sailplanes were entered, of which eight were of British design and construction. Altogether 99 flights were made with a total flying time of 89 hr. 19 min 30 sec., or an average per flight of nearly 1 hr.

On the opening day lack of wind and an overcast sky made soaring flight difficult, and no outstanding flights were made. Lord Sempill, the B.G.A. President, visited the meeting by "Leopard Moth," and brought Herr R. Kronfeld with him. Somewhat similar conditions prevailed on Sunday, but G. E. Collins, in his "Rhonadler," by making use of thermal currents, was able to climb to an altitude of 3,000 ft., after a winch launch. Mrs. Mackie, of the Ulster Club, also made a very good flight, but damaged the "Scud II" on landing The Ulster Club sportingly brought three machines over from Ireland for the competitions.

The course for the Daily Competition was to Osmotherley and back, a distance of twelve miles. The prize was won by G. E. Collins with a flight lasting over two hours, during which he reached an altitude of 3,250 ft. This was the longest "out-and-return" flight to be made in this country. A two-hour flight in the Ulster Club's "Kassel 20" was made by H. C. Wynne, who at one time dropped to 300 ft. below the hill-top, but by skilful soaring he was able to regain his altitude.

Riding the Storm

On Tuesday, September 4, at about 6 p.m., a large thunderstorm, that appeared to have been forming over the Pennines for some hours, was noticed to be moving over towards Sutton Bank. In tense excitement four sailplanes were quickly rigged and taken to the starting point in great hopes that at last real thunderstorm flying would be added to the history of British soaring flight. The pilots and machines, in the order of taking off, were G. M. Buxton in "Scud II," R. G. Robertson in a "Professor," G. E. Collins in the "Rhonadler," and, lastly, J. Dewsbery in the blue "Willow Wren." For some minutes the four aircraft flew back and forth over the south spur, in a very limited area of lift and with very little gain in height. Robertson lost the lift altogether and was forced to land away from the hill. Then suddenly it was noticed that the other three machines were gaining height, and at an altitude of just over 1,000 ft. Collins disappeared into the cloud, followed by Buxton, and a little later by Dewsbery, who had flown along the van of the storm. The cold front apparently moved from the S.W., met the warmer winds blowing from the S.E., and thus formed a huge cylinder of dark cloud stretching for many miles in a line running roughly N.N.E. to S.S.W. and advancing in a crab-wise fashion to the north-east.

Collins left the storm and headed east, landing at Pickering after a 2 hr. flight of 18⅝ miles, in which an altitude of 3,000 ft. was reached. Buxton came out of the storm at the rear, flew beneath it to the front and there entered it again. He quickly rose to his maximum altitude (unconfirmed) of 7,970 ft. at the rate of climb of 10 and sometimes 20 ft. per sec., and then flew north to Middlesbrough, a distance of 22¾ miles, where he landed three-quarters of an hour after the take-off. This is claimed as a British altitude record.

Dewsbery made contact with a second storm and covered a distance of 30¾ miles in just under two hours, reaching a maximum altitude of 2,750 ft.

Unsuitable weather made flying difficult on Wednesday and Thursday, and nothing of importance was achieved, but on Friday afternoon the wind veered from E. to S. for a short spell. A daily competition was arranged for maximum aggregate duration, and this was won by the "Crested Wren," piloted by S. Humphries and J. Dewsbery, with a total time, for three flights, of 2 hr. 34 min. 6 sec. The "Golden Wren" was second with 2 hr. 28 min. 14 sec., the pilots being G. O. Smith and R. G. Robertson.

Duration Record Broken

A strong South wind on Saturday saw J. Laver up in the "Dorsling" shortly after 7 a.m., on an attempt to win the British duration record. After flying for about three and a half hours he managed to make contact with passing clouds and circled away to the N.E —a surprising performance for an old "Prüfling" type machine—and later returned to the N. end of Sutton Bank to continue his vigil. The "Dorsling" was followed by the "Tern," "Golden Wren," "Rhonadler," "B.A.C. 7," "Scud II," "Grunau Baby," "Blue Wren," and "Crested Wren," and throughout most of the day from six to eight sailplanes were to be seen in the air together, a sight never before witnessed in England.

G. M. Buxton, in the "Scud II," flew along the south slope to Oswaldkirk and back, nearly seven miles each way, thereby winning the prize for the daily competition. A special prize, offered for maximum height, was won by G. E. Collins, in the "Rhonadler," by a flight lasting 1 hr. 10 min., during which an altitude of 3,600 ft. was obtained by the combined use of hill winds and thermal currents. On the way down Collins executed a number of loops and other aerobatics.

The "Dorsling" was eventually grounded after 8 p.m., Laver having broken the British duration record.

The total flying time for Saturday was 40 hr. 6 min. for 32 flights.

The main competition was concluded at noon on Sunday, September 9th, but a daily competition continued throughout the day for the greatest number of flights made from the White Horse (S. end of site) to Whitestone Cliffs, 1½ miles to the N.W. The competition was open to machines so that any number of pilots could compete with one aircraft. R. G. Robertson in the "Golden Wren" won the competition with seven circuits.

RESULTS

TROPHIES.

Wakefield Trophy (distance).—G. E. Collins, Rhonadler, for flight of 98¼ miles* on 5.8.34, from Dunstable to Holkam Bay, on the Norfolk coast.

De Havilland Cup (height).—G. M. Buxton, Scud II, flight of 4.9.34, height of 7,970 ft.*

Volk Cup (duration).—J. Laver, Dorsling, for flight of 8.9.34, lasting 12 hr. 21 min.

Manio Cup (out and return).—G. E. Collins, Rhonadler, for flight of 3.9.34, from Sutton Bank (White Horse) to Osmotherly Church and back, 12 miles each way.

SPECIAL PRIZES.

CLASS I.

Distance.—J. Dewsbery, Willow Wren, 4.9.34, flight from Sutton Bank to Hawsker, near Whitby, of 30¾ miles.

Height.—G. M. Buxton, Scud II, 4.9.34, 7,970 ft.* (subject to confirmation).

Duration.—J. Laver, Dorsling, 8.9.34, 12 hr. 21 min.

Out and Return.—G. E. Collins, Rhonadler, 3.9.34, from Sutton Bank to Osmotherly and back, 12 miles each way.

CLASS II.

Distance.—P. A. Wills, Scud II, flight to Ingleby Greenhow, 18 miles.

Height.—1st: G. M. Buxton, Scud II, 2,650 ft. 2nd: W. W. Briscoe, Scud II, 2,000 ft.

Duration.—1st: J. Laver, Dorsling, 4.9.34, 5 hr. 56 min. 2nd J. Laver, Dorsling, 3.9.34, 2 hr. 16 min.

Out and Return.—1st: G. M. Buxton, Scud II, 8.9.34, flight to Oswaldkirk and back (7 miles).

* Subject to official confirmation of R.A.C.

Some Irish Statistics

During the first six months of the present year aeroplanes to the value of £14,733 were imported into the Irish Free State, as compared with £2,000 in the corresponding period of last year. Spare parts imported in the half-year under review were valued at £1,276, while in 1933 they amounted to only £737. The big increase in the figure for imported aeroplanes this year is due to the purchase of a flight of Avro training machines for use by the Army Air Corps at Baldonnel aerodrome where there are twenty officer-pilots and eleven pupils.

According to official information from the Minister for Industry and Commerce, who is responsible for civil aviation in the Irish Free State, there are eleven current registrations on the aircraft register of that country. Thirty-eight "A" and fifteen "B" licences had been issued by the Minister up to the end of August.

The number of aircraft on the Irish register does not, of course, include several machines which were purchased in England and are registered with the Air Ministry.

Private Flying

A MIDLAND OCCASION

Informality at Castle Bromwich : The Midland Aero Club's "At Home"

CASTLE BROMWICH is a Service aerodrome, and it is only when the Auxiliary Squadron "cat" is away that the Midland Aero Club "mouse" can play on anything like a large scale. Hence the fact that one of the most successful, and certainly the oldest, of our flying clubs so rarely appears in the limelight.

Last week an "old-timers" dinner was held in the club-house—few people realise that the club was founded as long ago as 1909—and Saturday's "At Home" aptly followed it up. At the aerodrome could be seen all the veterans of the post-war development, many of whom learnt to fly on the club's original Mark I "Moth." More than forty machines, too, arrived from various parts of the country.

Just for once the inevitable arrival competition was not run on "sealed time" lines, but a committee, who probably escaped a lynching, judged the most correct and efficient approach and landing. The event was won by Mr. Northway, flying the Cotswold Club's Hermes-Desoutter—suspiciously like the N.F.S. King's Cup machine, and not one in which a poor approach could be faked.

While late arrivals were still slipping in over the telegraph wires, Mr. George Lowdell took up a Wolseley "Tomtit," and proceeded to do everything that is possible without an inverted fuel feed, and wound up his clean display by a landing straight off a series of exaggerated "swishtails" as near to the "free" enclosure as possible

The first competitive event seemed likely to give everyone something to think about. It was called a "navigation competition," and involved a good deal of last-minute mental calculation. Five minutes before the start the pilots were given an envelope with two true bearings, on each of which they had to fly for twenty miles, one, 113 deg., taking them to a point near Rugby, and the other, 233 deg., to Stratford-on-Avon, from whence they had to return. Cars with white sheets and observers with white flags were posted at the turning points, and the machines were required to cruise at a ground speed of 90 m.p.h.—a fact which caused the adjudicators some little slide-rule operation. More than one competitor drew a beautiful line on his map in the wrong direction, followed it carefully, and came to the conclusion that the observer had gone to tea, but most came through with flying colours at any speed from 80 to 100 m.p.h. The winners were Mr. W. D. Gairdner, flying the Brian Lewis "Leopard Moth," and Mr. F. J. A. Cameron, flying a "Puss Moth."

Meanwhile, Flt. Lt. Tommy Rose, once, incidentally, an instructor of the club, demonstrated both speed and controllable sloth on the "Hawk Major," Mr. Hordern added beautiful loops and undercarriage retractilations to his turn with the Klemm "Eagle," a Klemm "Swallow" moved softly about the sky, at various speeds, Mr. Lowdell burst, or failed to burst balloons, and everybody except the hard-working officials went to tea.

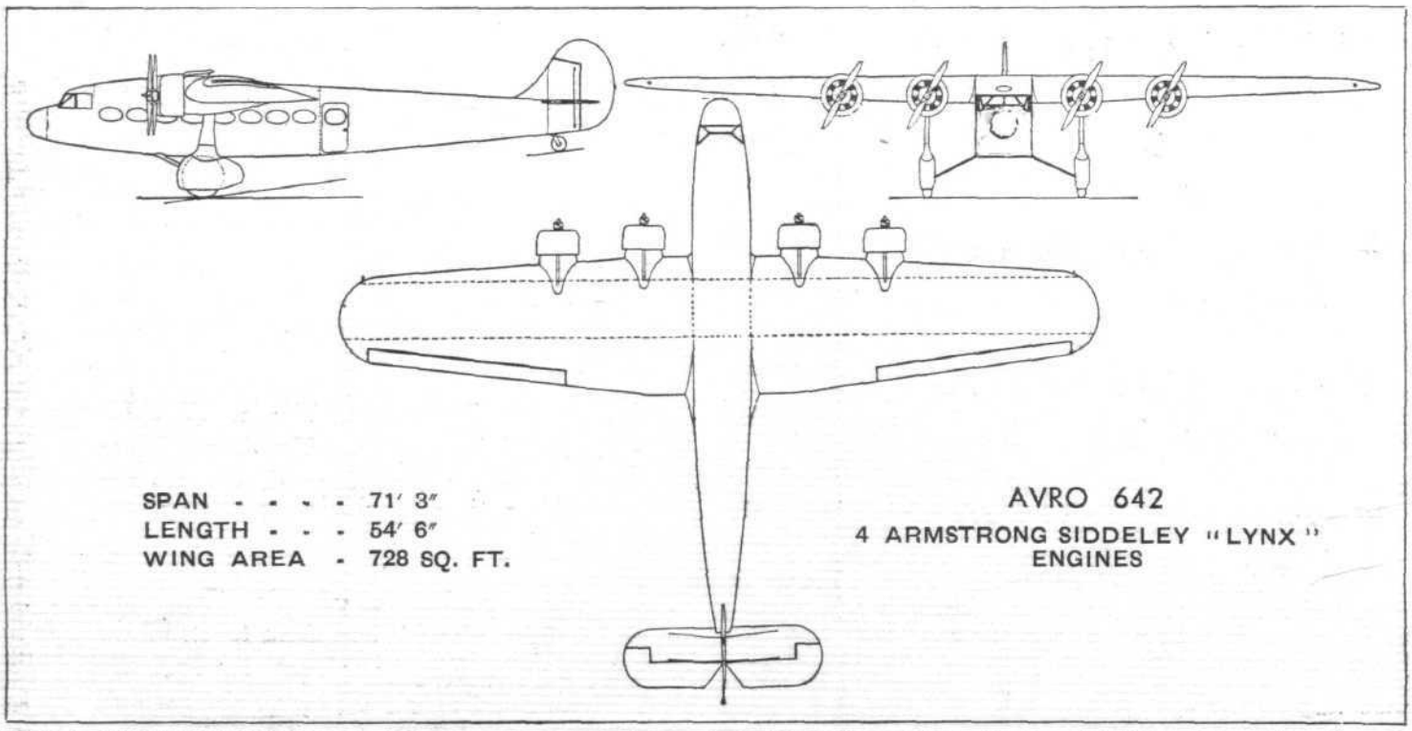
There were six teams of three in the Relay Race, which was run off in two heats and a final, the machines being in view during the whole seven miles of the out-and-home course—save when they were below tree level. A starting line was laid out across the north-east corner of the aerodrome, and each competitor had to land behind this line, taxi up to it, stop his engine and run to the next man with his baton. If he overshot, the machine had to be man-handled back to the line before he could leave it. So we saw some fairly hectic approaches and still more hectic "driving"; wheelbrakes were at a premium.

During the first heat, between the Midland, Cotswold, and Leicestershire Clubs, the Cotswold pilot on the first round made up a good deal by an ingenious and emotioning cross-wind landing, but the heat was won by Leicester just the same. The Midland Private Owners' team won the second heat from three Klemms, one an "Eagle," and the Northamptonshire club.

The final was really quite exciting. After two rounds, in which the battle closed between the Midland Owners and the Leicestershire Club, Mr. G. S. Davison, who had, incidentally, only been flying his Monospar for a week, set off with a fair lead and was beaten only by the odd second. Leicestershire held the inside position and made up, perhaps, twenty seconds by a "cut-in" approach at the finish with a rather more manœuvrable machine. The winners were flown by Messrs. Roy Winn, Don Longmore, and Flt. Lt. P. Stringer, the Leicestershire chief instructor.

Thereafter Major Gilbert Dennison presented the pots, boxes and cases to the winners, Mr. H. L. Johnson ("Puss Moth") surprising himself by owning the "best-kept machine"—and dancing rounded off the day. H. A. T.

VICEREGAL



FOR INDIA'S VICEROY: A general-arrangement drawing of the Avro 642, with four Siddeley "Lynx" engines, which is being supplied to Lord Willingdon for his personal use in India. In this form the 642 should have a maximum speed at sea level of 150 m.p.h. and a service ceiling of 15,000 ft.

FROM THE CLUBS

Events and Activity at the Clubs and Schools

HERTS AND ESSEX

Mr. G. B. Pollard has presented a trophy for the Visitors' Race at the Herts and Essex "Aerofête" which is to be held next Saturday, starting at 3 p.m.

LIVERPOOL

Since the commencement of the year the Liverpool and District Aero Club has put in an unusually high number of flying hours—1,899, to be exact. During August the hours totalled 262.

YORKSHIRE

Thirty-one hours were flown in the Yorkshire Aeroplane Club machines last week, and Mr. A. R. Edge passed his "A" licence tests. A honeymoon couple were sent off from Yeadon last Saturday for Switzerland in a Hillman "Puss Moth."

NORTHAMPTONSHIRE

Flying times for the week totalled twenty-six hours, three first solos were successfully carried—all on the same evening. The Chief Instructor was working alone and it must be a record for one instructor to send three pupils off on first solos within an hour, as Flt. Lt. Rose did on that occasion.

Arrangements are now being made for the Club's annual ball, which will be held in Northampton on November 16.

BROOKLANDS

Among the new pupils, Mr. Tata, who is connected with Tatas, Ltd., the Indian air line company, is taking his "B" licence. During the week there have been an abundance of first solos—six in all.

Brooklands is receiving more and more visitors every day who take a great interest in all that is happening, particularly at the College of Engineering, which is making rapid progress.

WITNEY AND OXFORD

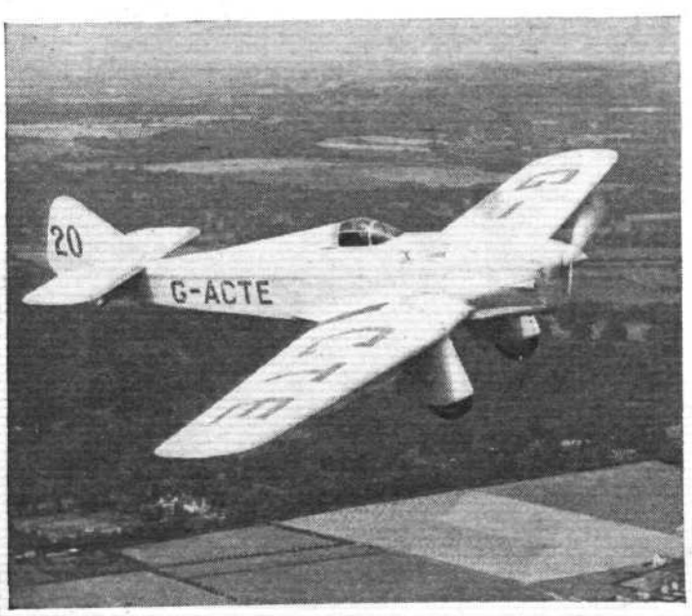
Somewhat squally weather has stopped flying at times during the past week, but 7 hr. 40 min. dual and 22 hr. 50 min. solo have been flown by the club with a first solo by Mr. E. P. Pridgeon.

Two machines visited the Midland Aero Club for their Garden Party, and on the way home Mr. G. G. McLannahan pulled off an excellent forced landing in somewhat Alpine surroundings.

HAMPSHIRE

During the month of August a little more than 250 hours were flown by the Hampshire Aeroplane Club at Eastleigh. Nine new members joined, five pupils made first solos and three qualified for their "A" licences.

Four club machines were flown to their old home at Hamble for the A.S.T. "At Home," at which Sir Rupert Brickwood won the annual competition.



A FAST "HAWK": Built for Sir Charles Rose, this "Hawk," with a "Gipsy Six" 200 h.p. engine, has a top speed of about 180 m.p.h. (*Flight* Photo.)

The landing competition, held on August 26, was won by Mr. V. F. Nicholson.

CINQUE PORTS

As a result of the International Meeting the Club has been inundated with enquiries for membership. Flying times for the week ending September 2 totalled 82.55 hours; times for this week totalled 57.10 hours. The meeting accounted for 45 hours.

Many telegrams of thanks have been received from abroad, and it is quite obvious that the Club will have to make the International Meeting an annual event. The Club wishes to thank all those who helped make the week-end such a great success.

HATFIELD

Last week was an exceptionally busy one for the London Aeroplane Club, the flying time being 97 hr. 20 min. Three first solo flights were carried out and three members completed their "A" licence tests. Two Indian members gained their "B" licences, having successfully passed their night flying tests.

Blind flying is proving very popular with members, several of whom have started courses of instruction in this particular branch.

With regard to the competitions being organised by the Club, the following dates have now been fixed:—Aerobatics: September 16; Navigation: September 22; Map Reading: September 29.

BRISTOL AND WESSEX

Last Saturday afternoon the Lord Mayor of Bristol received No. 501 (City of Bristol) (Bomber) Squadron at Bristol Airport, where the officers were entertained to tea. The squadron arrived in formation at 3.35 p.m., and the officers were introduced to the Lord Mayor by Flt. Lt. W. E. Staton, M.C., D.F.C., who was in command of the squadron in the absence of Sqd. Ldr. Elliot. After the Lord Mayor had inspected the Westland "Wallaces" tea was taken in the main hangar, and at 5 p.m. the squadron left in formation for Filton.

This is the second occasion on which No. 501 Squadron has been received at the Bristol Municipal Airport by the Lord Mayor of the City.

NORFOLK AND NORWICH

The total hours flown by the club during the last week reached sixty-one, which is certainly a record for the year, and falls short of the club's record by just four hours. The boys attending the Public Schools Aviation Camp contributed over twenty-six hours towards this total, and all the boys have now flown solo. Two more qualified for their licences. Those who have qualified left the camp during the week-end, but the rest are staying on until Wednesday.

The tie between Mr. A. R. Colman and Mr. A. J. S. Morris in the President's Trophy competition was flown off last Thursday evening over another course, and was judged by Flt. Lt. C. Feather. Mr. A. R. Colman was the winner for the second year in succession.

On Saturday, September 22, the club will be holding its annual garden party. The programme, which will commence at 3 p.m., will consist of flying competitions, archery, a clay pigeon shoot, besides other events. In the evening there will be a dance in the clubhouse.

Autogiro News

Mr. D. Mills, of Tasmania, who recently went solo at Hanworth on a C.30 autogiro, is the first *ab initio* pilot to be trained on the direct-controlled type.

Last week Mr. Schmidt Krans flew an autogiro over to Rotterdam for one of his pupils. Mr. Krans is the chief instructor of the Dutch National Flying School.

A New Irish Club

Members of General O'Duffy's League of Youth—better known as the "Blueshirts"—have started an air squad, the Eire Og (Young Ireland) Aero Club. Captain J. P. Saul, who flew the Atlantic with Sir Charles Kingsford Smith, is the Club's first chairman. As the Government of the Irish Free State does not approve of "Blueshirt" activities it is unlikely that they will be able to use Baldonnel aerodrome and will probably make their headquarters at Kildonan, Finglas.

THE ROYAL AIR FORCE

Service Notes and News — *Air Ministry Announcements*

AIR MARSHAL SIR JOHN STEEL

Air Marshal Sir John M. Steel, Air Officer Commanding the Royal Air Force, India, has been operated on for appendicitis at the Walker Hospital in Simla. He is reported to be progressing favourably.

A NEW AERODROME AT MANBY

Negotiations are now in progress for the Air Ministry to acquire land for a new aerodrome near Louth, in Lincolnshire, at a place called Manby, with bombing ranges off the shore some distance from the seaside resort of Mablethorpe. It is the intention to transfer there the Air Armament School from Eastchurch, which is obviously a vulnerable position in time of war. Ultimately this new station will accommodate some 700 men, but it is unlikely to be fully ready for use for another two or three years.

LOSS OF A "SOUTHAMPTON"

A "Southampton" flying boat of No. 210 (F.B.) Squadron, stationed at Pembroke Dock, made a forced landing in the sea off St. David's Head on Thursday, 6th inst. The crew of six were taken off by the Angle lifeboat and landed safely at Pembroke, after the flying boat had been taken in tow by the steamer *Kylegorm*. The coxswain of the lifeboat said that the crew were taken off by ramming the bow of the lifeboat into the capsized flying boat, and then the men, who were standing on the wings and hull, jumped on board the lifeboat. The flying boat sank fourteen miles off St. Anne's Head

THE FRENCH AIR MANŒUVRES

General Denain, the French Air Minister, has issued a statement on the recent air manœuvres held over Le Bourget. New material, he said, has been ordered, and trials are constantly made to test its value and to seek improvements. Instruction and training have for their object the getting of the last ounce of efficiency out of the material employed. It is important. the General said, not to confuse strategy with tactics, as the former is stable, whereas tactics vary with the material used

THE COMBINED OPERATIONS

The combined operations on the Yorkshire coast which began on Monday September 10, take the form of a landing of troops from a naval force, which includes the carrier *Courageous*, with the object of establishing an air base on the Holderness peninsula. The invaders are supported by Nos. 26 and 4 (Army Co-operation) Squadrons (less one flight of No. 4 A.C. Squadron), which are stationed at Catfoss, and by Nos. 35 and 207 (Bomber) Squadrons and one fighter squadron stationed at Bircham Newton. The defending side has only one flight of No. 4 (A.C.) Squadron in the way of aircraft. The invading aircraft are under the command of Air Vice-Marshal A. M. Longmore, C.B., D.S.O. The main aims of the exercise are to test co-operation between the three Services, and the communications between them. The army co-operation squadrons will be largely responsible for these communications. There is no intention of testing the liability of the country to invasion or to compare the utility of the three Services.

1ST AIR DEFENCE BRIGADE EXERCISES

The 1st Air Defence Brigade, including the 1st A.A. Battalion, R.E., the 1st A.A. Brigade, R.A., and the Air Defence Brigade of the Royal Corps of Signals, has been carrying out exercises near Bognor Regis to test to some extent the protection of stationary ground targets against air attack by means of fire from the ground. Bomber aircraft have provided the attacks, and friendly fighters have also been employed. Part of the exercise has been concerned with ensuring that friendly aircraft are not fired on by mistake.

MONOSPARS ON MANŒUVRES

The British Red Cross is supplying a Monospar S.T.10 for use as an ambulance on Army manœuvres in Essex. The machine will take a stretcher case, as well as two sitting cases or one attendant and one sitting case, from the field ambulance to hospital. This is a novel use for a comparatively small machine, and it seems capable of considerable development.

A Monospar has also been used lately on Army manœuvres in Japan, mainly for wireless work, and has given great satisfaction.

The Hawker "Hardy" ("Kestrel"), a number of which have been ordered for delivery to the Iraq Command, R.A.F. (*Flight* Photo).

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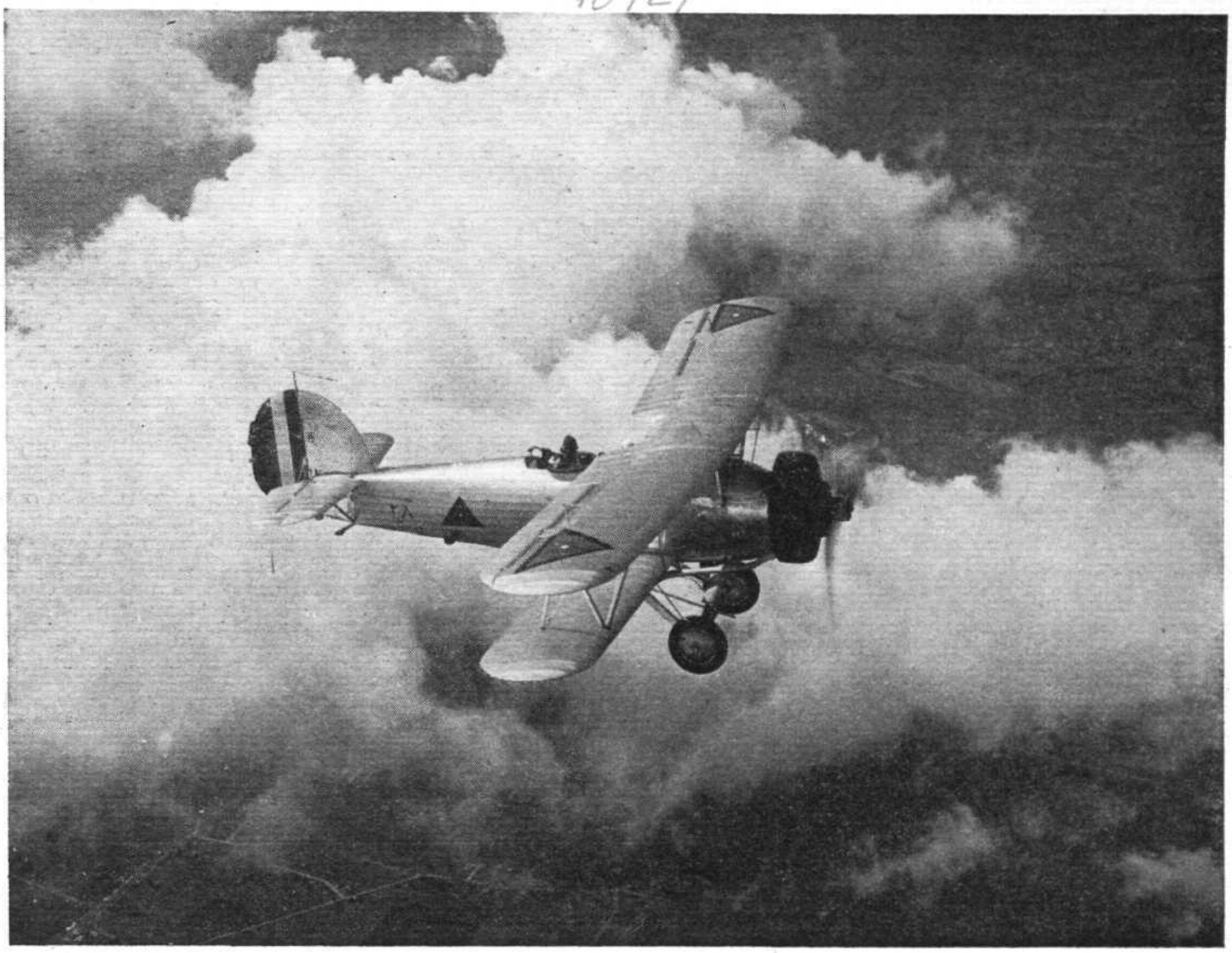


The Hawker "Audax" ("Pegasus"), a number of which have been ordered for the Iraqi Army.
(*Flight* Photo.)

AVROS FOR THE EGYPTIAN ARMY

10729⁵

The Egyptian Army is acquiring 10 Avro 626 biplanes (Siddeley 277 h.p. "Cheetah") for general work. Each machine carries front and rear guns, and can be equipped with a selection of cameras, bombs, two-way wireless on short or medium waves, and night-flying gear though all this would not be carried at the same time. The machines will be used for survey, desert patrol, and the search for drug smugglers. The machines will be flown out to Egypt in formation, and should leave Lympne on Monday, September 17.

THE POWER GRID CRASH

F/O. J. G. Bigelow, of No. 29 (Fighter) Squadron, who was injured when his "Bulldog" flew into a cable of the grid near Ham Street, Kent, died in hospital from his injuries. At the inquest, Flt. Lt. J. B. Lynch, the leader of the flight, said that at the time he was flying at 300 ft., which was the minimum height prescribed on such occasions. Bigelow was much lower, and the height of the top wire was stated by another witness to be 50 ft. Flt. Lt. Lynch said that the grid system was not marked on the maps they used, and the lines were more difficult to see than telegraph wires, because the colour of the pylons merged into the colour of the surrounding landscape.

No. 203 (F.B.) SQUADRON

The three "Rangoon" flying boats of No. 203 (F.B.) Squadron, which are to take part in the Victoria Centenary celebrations, left their home station of Basra on September 5. They arrived at Karachi the next day, and left again on the 7th. On the 9th they reached Allahabad.

THE ROYAL AIR FORCE BENEVOLENT FUND

The usual meeting of the Grants Committee of the above Fund was held at Iddesleigh House on Thursday, September 6, 1934. Mr. W. S. Field was in the chair, and Wing Commander H. P. Lale, D.S.O., D.F.C., was also present. The Committee considered in all a number of cases, and made grants to the amount of £289 8s. 10d. The next meeting was fixed for Thursday, September 20, 1934, at 2.30 p.m.

AIR FORCE LIST

The September issue of the Air Force List has now been published. It can be purchased (price 2s. 6d.) from H.M. Stationery Office at the following addresses:—Adastral House, Kingsway, London, W.C.2; 120, George Street, Edinburgh; 2, York Street, Manchester; 1, St. Andrew's Crescent, Cardiff; 15, Donegall Square, Belfast; or through any bookseller.

ROYAL AIR FORCE GAZETTE

London Gazette, September 4, 1934

General Duties Branch

J. N. Tomes is granted a permanent commission as Pilot Officer with effect from August 24, and with seny. of August 24, 1933.

The follg. flight cadets having successfully passed through the Royal Air Force College, Cranwell, are granted permanent commissions as Pilot Officers with effect from and with seny. of July 28:—D. G. Stokes, H. Molyneux, E. E. Vielle, P. J. A. Riddell, J. R. Jeudwine, R. G. Yaxley, P. W. Ashton, J. E. Kirk, R. J. Burrough, H. J. Hobbs, A. R. D. MacDonell, W. A. Hughes, J. H. Lowe, R. C. F. Lister, C. Charlton-Jones, P. D. W. Hackforth, D. W. Williams, C. L. Y. Wright, H. D. Beck, K. E. Cornabé, D. Saward, G. A. V. Clayton, A. F. Hards, N. D. Ashton, A. F. Spurrier, T. R. Manson, R. E. Curry.

The follg. are granted short service commissions as Acting Pilot Officers on probation with effect from and with seny. of August 24:—W. F. Barton, K. S. Batchelor, R. E. Burns, V. N. Clifton, A. G. Corbin, R. M. Fenwick-Wilson, G. M. Fidler, A. Flowerdew, C. Fothergill, C. R. Hart, M. S. C. Hymans, C. W. K. Nicholls, W. I. Scott, J. Storey.

P/O. C. S. Byram is promoted to the rank of Flying Officer (July 19); Grp. Capt. F. P. Don, O.B.E., is placed on the half-pay list, scale A, from August 29 to September 12, inclusive; Sqd. Ldr. B. K. D. Robertson, A.F.C., is placed on the half-pay list, scale A, from August 25 to August 27, inclusive; Sqd. Ldr. V. S. E. Lindop is placed on the half-pay list, scale A (August 25); Sqd. Ldr. R. M. Trevethan, M.C., is restored to full pay from half pay (August 27); Wing Com. C. E. Maude is placed on the retired list at his own request (September 1).

The following Flying Officers are transferred to the Reserve, class A:—C. A. Washer (August 27); K. M. Cass, H. R. Clay, G. G. Dixon, D. W. H. Heath, H. de M. Middleton, R. J. Parkhouse, A. C. Richardson (August 30).

Memoranda

The permission granted to Sec. Lt. J. W. Hamilton to retain his rank is withdrawn on his enlistment in the Royal Army Pay Corps (Supplementary Reserve) (May 14). The permission granted to Sec. Lt. P. W. Ford to retain his rank is withdrawn on his conviction by the civil power (July 28).

ROYAL AIR FORCE RESERVE

Reserve of Air Force Officers
General Duties Branch

The follg. are granted commissions as Pilot Officers on probation in class AA (i) (August 22):—C. G. Holland-Martin, R. W. G. Kitley.

The follg. are transferred from class A to class C:—Flt. Lt. R. Duncanson (August 31); Flt. Lt. R. Y. Bush (September 2); F/O. B. N. Murgatroyd (September 2).

F/O. G. E. T. Scrase resigns his commission (March 16).

Medical Branch

Flt. Lt. (Honorary Sqd. Ldr.) T. M. Walker, M.R.C.S., L.R.C.P., ceases to be employed with the Regular Air Force, and relinquishes his commission on completion of service and is permitted to retain the honorary rank of Sqd. Ldr. (September 2).

NAVAL APPOINTMENT

The follg. appointment was made by the Admiralty:—

ROYAL AUSTRALIAN NAVY

CDR.—H. A. SHOWERS, to H.M.S. *President*, for one week's meteorological course at Air Ministry (September 3).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Squadron Leaders.—B. K. D. Robertson, A.F.C., to Record Office, Ruislip, 28.8.34. For Administrative duties vice Sqd. Ldr. W. E. Swann. R. M. Trevethan, M.C., to No. 23 Group Headquarters, Grantham, 27.8.34. For Personnel Staff duties vice Sqd. Ldr. G. H. Cock, M.C. J. H. Butler, to Special Duty List, 24.8.34. For duty with the Indian Air Force.

Flight Lieutenants.—V. Croome, to No. 19 (F) Squadron, Duxford, 28.8.34. J. H. McC. Reynolds, to No. 6 (B) Squadron, Ismailia, Egypt, 24.8.34. C. Stephenson, to No. 26 (Army Co-operation) Squadron, Catterick, 18.8.34.

Flying Officer.—A. E. Clouston, to No. 24 (Commn.) Squadron, Hendon, 29.8.34.

Pilot Officer.—J. N. Tomes, to R.A.F. Depot, Uxbridge, 24.8.34. On appointment to a Permanent Commission.

The following Pilot Officers are Posted to their respective units on 28.7.34, on appointment to Permanent Commissions from the Royal Air Force College, Cranwell:—N. D. Ashton, to No. 1 (F) Squadron, Tangmere. P. W. Ashton, to No. 2 (Army Co-operation) Squadron, Manston. H. D. Beck, to No. 35 (B) Squadron, Bircham Newton. R. J. Burrough, to No. 2 (Army Co-operation) Squadron, Manston. C. Charlton-Jones, to No. 35 (B) Squadron, Bircham Newton. G. A. V. Clayton, to R.A.F. Base, Calshot. K. E. Cornabé, to R.A.F. Base, Calshot. R. E. Curry, to No. 35 (B) Squadron, Bircham Newton. P. D. W. Hackforth, to R.A.F. Base, Calshot. A. F. Hards, to No. 41 (F) Squadron, Northolt. H. J. Hobbs, to R.A.F. Base, Calshot. W. A. Hughes, to R.A.F. Base, Calshot. J. R. Jeudwine, to No. 12 (B) Squadron, Andover. J. E. Kirk, to No. 16 (Army Co-operation) Squadron, Old Sarum. R. C. F. Lister, to No. 13 (Army Co-operation) Squadron, Netheravon. J. H. Lowe, to No. 99 (B) Squadron, Upper Heyford. A. R. D. Macdonell, to No. 54 (F) Squadron, Hornchurch. T. R. Manson, to No. 10 (B) Squadron, Boscombe Down. H. Molyneux, to No. 32 (F) Squadron, Biggin Hill. P. J. A. Riddell, to No. 16 (Army Co-operation) Squadron, Old Sarum. D. Saward, to No. 13 (Army Co-operation) Squadron, Netheravon. A. F. Spurrier, to R.A.F. Base, Calshot. D. G. Stokes, to No. 16 (Army Co-operation) Squadron, Old Sarum. E. E. Vielle, to No. 32 (F) Squadron, Biggin Hill. D. W. Williams, to No. 101 (B) Squadron, Andover. C. L. Y. Wright, to No. 4 (Army Co-operation) Squadron, South Farnborough. R. G. Yexley, to No. 57 (B) Squadron, Upper Heyford.

Acting Pilot Officers.—The following Acting Pilot Officers are Posted to R.A.F. Depot, Uxbridge, 24.8.34, on appointment to Short Service Commissions:—W. F. Barton, K. S. Batchelor, R. E. Burns, V. N. Clifton, A. G. Corbin, R. M. Fenwick-Wilson, G. M. Fidler, A. Flowerdew, C. Fothergill, C. R. Hart, M. S. C. Hymans, C. W. K. Nicholls, W. I. Scott, and J. Storey.

Stores Branch

Flying Officer.—C. F. Harrington, to No. 55 (B) Squadron, Hinaidi, Iraq, 14.8.34.

Medical Branch

Group Captain.—F. C. Cowtan, to Princess Mary's R.A.F. Hospital, Halton, 27.8.34. For duty as Commanding Officer.

Flight Lieutenant.—F. W. P. Dixon, M.B.E., to No. 33 (B) Squadron, Bicester, 27.8.34.

Dental Branch

Flight Lieutenants.—W. D. Guyler, to R.A.F. Depot, Uxbridge, 3.9.34. V. H. Weekes, to Station Headquarters, Upper Heyford, 3.9.34.

Flying Officer.—C. R. Stone, to R.A.F. Base, Leuchars, 3.9.34.

10723

THE WESTLAND DAY AND NIGHT FIGHTER: The Rolls-Royce "Goshawk" engine is placed centrally and drives the airscrew through a shaft. (*Flight* Photo.)

COMMERCIAL AVIATION

— AIRLINES — AIRPORTS —

ON THE IRISH ROUTE

Impressions of a Trip to Belfast by Railway Air Services. The D.H.86 from the Passengers' Point of View

ALTHOUGH it is possible to argue more or less indefinitely about the value of short internal air routes in countries where the surface transport has already been well developed, the existence of quite a short sea passage in a particular route puts a very different complexion on the matter.

On the day before the opening of the new Ards airport we had the opportunity of travelling to Belfast by Railway Air Services, and, after experiencing the journey on previous occasions by train and boat, there remained no doubt that the additional cost of the air journey was more than justified. Leaving Victoria Station at 2.25 p.m., the passengers were in their Belfast hotels before 7.15 p.m. after travelling in the tranquil state of mind only possible where there are no connections to be lost or taxis to be hailed. The surface journey, incidentally, takes something like twelve hours.

A Continental Connection

The time of starting—3.10 p.m. at Croydon—has been the subject of a certain amount of criticism, but it has one quite considerable advantage. Passengers from Paris, for instance, can leave the Rue des Italiens at 11.45 p.m. by Imperial Airways, and still be in good time to catch the Belfast and Glasgow machine at Croydon. Actually, we were in Paris at 9 a.m. on this particular morning, but, as a regular air route was not used for the journey to Croydon, this is another story.

We left Croydon, straight off the tarmac, in a blinding rainstorm, with memories of the black opening day of the service. Passing Bicester at 3.40, the "86" touched down at Castle Bromwich at 4.3. and left again at 4.16 through the smoke masses of the Midlands and intermittent curtains of rain. Meir Aerodrome loomed large at 4.36, with Stoke-on-Trent, grey-brown, to the left, and the Ship Canal, running like a silver ribbon as far as eye could see, was passed at 4.50. Barton gave the air-minded passengers something to think about as the pilot brought the machine in just over the boundary fence, tail down, and, even then, ran the length of the aerodrome.

At 5.25 we were riding at 6,000 feet below a clear blue sky and above the clouds and the Lancashire coast, with the sea below a mottled silver shield. To the left, the coast of Wales could be seen, and far away to the right the Lake District rose up to meet the clouds. Just for once the most hardened passengers sat up and looked around them.

Incidentally, every passenger machine should have an air speed indicator and an altimeter in the cabin. In spite of the claim that the payers of fare should, for their peace of mind, be kept in dark ignorance, such things add tremendously to the interest of a long flight. Furthermore, each passenger should be given a fairly detailed map, showing the route followed and the more salient landmarks, which he or she could take away as a souvenir. Whereas in a train one reads a book, in an aeroplane the desire to look out of the window is almost irresistible.

Aldergrove, where we touched at 6.36, though an excellent aerodrome is really an unreasonable distance from Belfast, but, perhaps, when Ards is extended in due course, even the most cautious operator will use it. Incidentally, aerodromes can be boring places, and the passengers should be told where

SINGAPORE-BRISBANE: The first of the D.H. 86s for the Qantas lap of the Australian route, in the air near Hatfield. The provision of dual control explains the "different" shape of the nose, in which a landing searchlight is also mounted. Mr. L. J. Brain, chief pilot of Qantas Empire Airways, Ltd., is to fly the machine out to Australia. (*Flight* Photo)

tea and so on can be obtained, and also the exact time of departure. One generally finds that passengers wander idly around in the sunlight or rain, afraid to stray too far from the machine in case it goes without them! Obviously, lounges and cafés for the use of passengers will eventually be a *sine qua non* at every aerodrome used by an air line.

The Machine

The internal arrangements of the D.H.86 are such as should give confidence to the most nervous new passenger, for whom there is a great impression of solidarity. Detail comfort, too, has been considered. Each passenger has his own ventilator and folding table, and the unusually comfortable Rumbold chairs are fitted with adjustable headrests.

At cruising revolutions it is only necessary to raise the voice slightly above the tone used for normal conversation, and, in the hands of a careful pilot, the machine is just about as comfortable as anything could be. The gliding angle at speeds below 80-90 m.p.h. appears to be distinctly nose high, and the clean design, of course, means that the approach angle is extremely flat—so flat, in fact, that the passenger who is a pilot may be excused during the approach to the aerodrome for thinking that the "86" cannot possibly reach the boundary without a burst of engines. The normal passenger, meanwhile, remains imperturbable. In actual operation the cruising speed appears to be just below 140 m.p.h., though the Gipsy Sixes are probably well throttled at this speed, which was that given on the "note" handed back to us at intervals.

HESTON

Ards Busy : Around the World : From Wrightson's : The Hungarian Tour : Customs Clearances

DURING the week-end after the opening, the Ards airport was used by several charter firms bringing parties to the T.T. Race, including a "Dragon" and a "Fox Moth" from Olley Air Services, a "Fox Moth" of Eastern Air Transport, and three Birkett Air Service machines chartered by the Press. On Monday, the first school flying day, four lessons had to be cancelled owing to a high wind. Hillman's regular service landed, nevertheless, and took off with full loads each way.

Mr. R. N. Chawla, who, in 1930, won the Aga Khan's prize for the first Indian to fly from India to England, has been frequently seen at Heston since he landed there in August on the first stage of his round-the-world flight. He states that the second stage is at present waiting on an expected cable from India. If finances permit he will buy an aeroplane capable of carrying the necessary amount of petrol, with a reasonable margin, to fly the Atlantic. If he achieves this and subsequent ocean crossings, his enterprise will be a round-the-world flight in actual fact. Otherwise he will ship his "Puss Moth" to America and Japan, flying the land portions, by way of the East Coast of China, back to India. He is not attempting a speed flight, and will proceed by easy stages. Mr. Chawla is at present arranging the purchase of a small cabin aeroplane on behalf of an Indian company, The Air Transport Co., which operates an Airspeed "Ferry" between Hardwar and Badrinath.

Flight-Lieut. Carruthers, of Eastbourne, has hired a "Leopard" from Wrightson and Pearse for a 10 days' pleasure trip to Tangier. His passenger is a boy of 15. This particular "Leopard" has no British hire-flights in its log-book, having done nothing but overseas journeys to date. A free-lance journalist has returned from another 10-day trip with a Gipsy I "Moth," during which he visited, flying himself, most of the capitals of Europe.

The forthcoming "Magyar Pilota Pic-nic" promises to be one of the best of the foreign air touring entertainments which have become so frequent during the last two years. Pilots taking part are scheduled to leave Heston on Thursday, September 13, to arrive at Budapest on the 15th, and thereafter revolve in a whirl of hospitality, cowpunching, shooting, sailing, fishing and other distractions until they return exhausted.

While on the subject of air tours, it might be mentioned that Mr. W. Lindsay Everard left Heston with three friends at 11.40 on the morning of September 1 for one of the most extensive cruises he has ever made. The party, travelling in a "Dragon," hope to visit France, Belgium, Germany, Denmark, Poland, the Balkans, Greece and Italy in the course of a month's absence from England.

Over three thousand aircraft have cleared Customs at Heston since the beginning of the year, a fact which suggests that aviation is "looking up" more and more.

PERFECT LINES: The Airspeed "Envoy" (two Wolseley A.R.-9 engines) flying over Portsdown Hill. This machine carries 8 passengers with 240 lb. of luggage at a cruising speed of 150 m.p.h. (*Flight* Photo.)

BEFORE DAWN

Every morning and in all weathers the London dailies are flown over to Paris, and sometimes fog landings have to be carried out. Here is an impression of one trip

4.45 A.M. The tarmac at Croydon is gently swept by a none-too-warm wind from a shuddering Air France Fokker left by itself to warm up. In five more minutes it will be on its way to Le Bourget with the morning papers for Messageries Hachettes, and the steady floodlight for its take-off is already reflected against the airport buildings.

Away by the hangars a Commercial Air Line "Dragon," which is to carry 750 kilos more of newspapers and leather "sausages" for Air France, is being taxied towards the tarmac, and the pilot, who is, incidentally, a director of the company, moves about his business with petrol "chits," and so forth, at a smart trot. Presently, seated on a hard bundle of newspapers just behind the Marconi A.D.6N and the pilot's little entrance, I am being taxied out, the machine is swung down the beam and the throttles opened wide.

We are fairly heavily loaded, and do not leave the ground with any alacrity, but in a minute the "Dragon" is climbing slowly over the dimly discernible villadom of Croydon on a compass course for Paris. The sky is clear, but the weather report is not too promising.

In the valleys of the South Downs the ground mist lies in lakes, and there is obviously some thick weather ahead. At 4,800 ft. we cross the coast, and immediately run into clouds and heavy rain. The pilot, who has already notified Croydon by wireless, concentrates on the Reid and Sigrist. One could almost hear the monotonous words of the instructor—"Rudder off bank first on the turn indicator, and then correct the sideslip. . . Watch the brandy . . . look at your *air speed.*" Clouds, mountainous clouds, continuous rain, and occasional glimpses of dull grey sea. All very well unless there's a "cold front" to go through; there's half a ton of ice for your leading edges in that.

A yellow sunrise is reflected against the edges of masses of grey-white cloud in a picture that Doré could have painted but could never have seen, and through the clouds appears the tiny patchwork of France. The estuary of the Somme is on the left, and Ault is immediately below us and to the right.

Down to a thousand feet. At eight hundred there are clouds still below us, and eventually we scurry along in the rain with the ceiling on the tree-tops watching for landmarks.

Over Beauvais we see the Fokker as an insect against the skyline. So he was in that stuff with us. Nasty thought. We cannot get a word out of Le Bourget until the Eiffel Tower can just be seen through the haze and Le Bourget itself is almost in sight.

Down over the wireless masts to a full-load wheel landing, and so to the Café Astoria. Another newspaper trip done.

. . . . . .

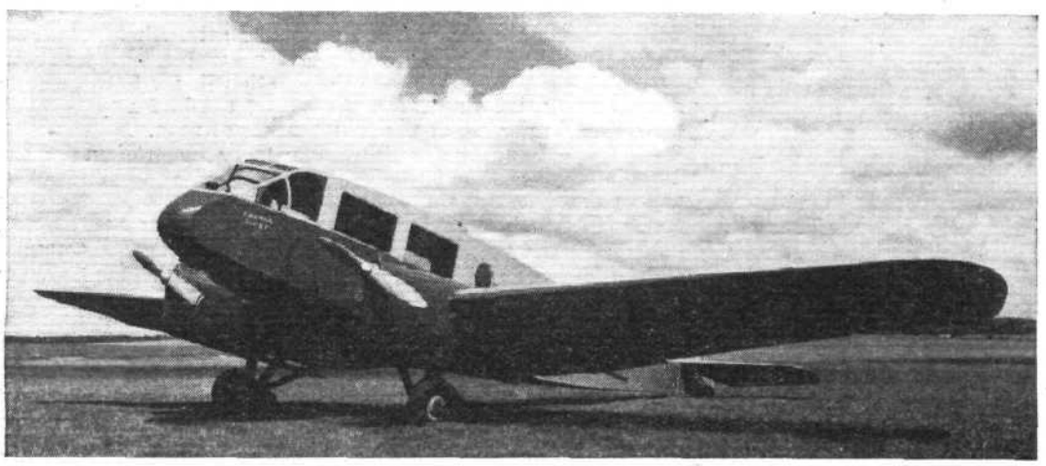
That sort of thing—in worse weather or in better weather—happens every morning, and only the inhabitants of Surrey ever know, complaining, perhaps, of the aeroplanes that fly over at 5 a.m.

Neither is it the whole story. These "dawn patrollers" have perfected a crude system for fog approaches and landings. Hardly safe enough for passenger transport, but a step in the direction in which all commercial aviation must move in the future if it is to compete on level terms with surface transport. "QBI" must not be allowed for ever to keep us out of the air.

The system depends on wireless, of course, on the commonsense of the officer at Le Bourget, and on direction-finding. In brief, the pilot brings his freighter directly over the fogbound airport, flies off at 35 degrees for six minutes, turns 180 degrees, comes down to 600 ft., running his generator at intervals so that the control can obtain his bearings, and cuts back his throttles when the operator hears his engines. All being well the machine touches down in the circle.

Of course it cannot always work. Once, when there were a number of other machines about, a Commercial Air Line "Dragon" was, so to speak, left groping about without a reply, and with a diminishing supply of petrol, for a long time. The pilot eventually put down in a market garden. He still flies the newspapers

H. A. T.



A FRENCH "DRAGON": This Gipsy-Farman, described in *Flight* of May 3, will be used on the Air France service between Paris and Biarritz. With five passengers and 220 lb. of luggage, it has a maximum speed of 130 m.p.h. and a range of 625 miles.

Aerodromes in Kalahari Desert

Two sites for emergency aerodromes have been surveyed by the Bechuanaland Government, on the Serowe side of Rakops.

A Winter Service to Ostend

Starting this month, a new week-end service to the Belgian coast will be started by S.A.B.E.N.A. The Municipality of Ostend has decided to "extend the season" into the winter.

Ceylon's Aerodrome

Work on Ratmalana aerodrome has been started, and the ground should be ready for Tata's mail machines in time for Christmas. The airport will be equipped with full hangarage, workshops, storerooms, administrative offices, a fuel depot, and a small customs station.

The Isle of Man Ferry

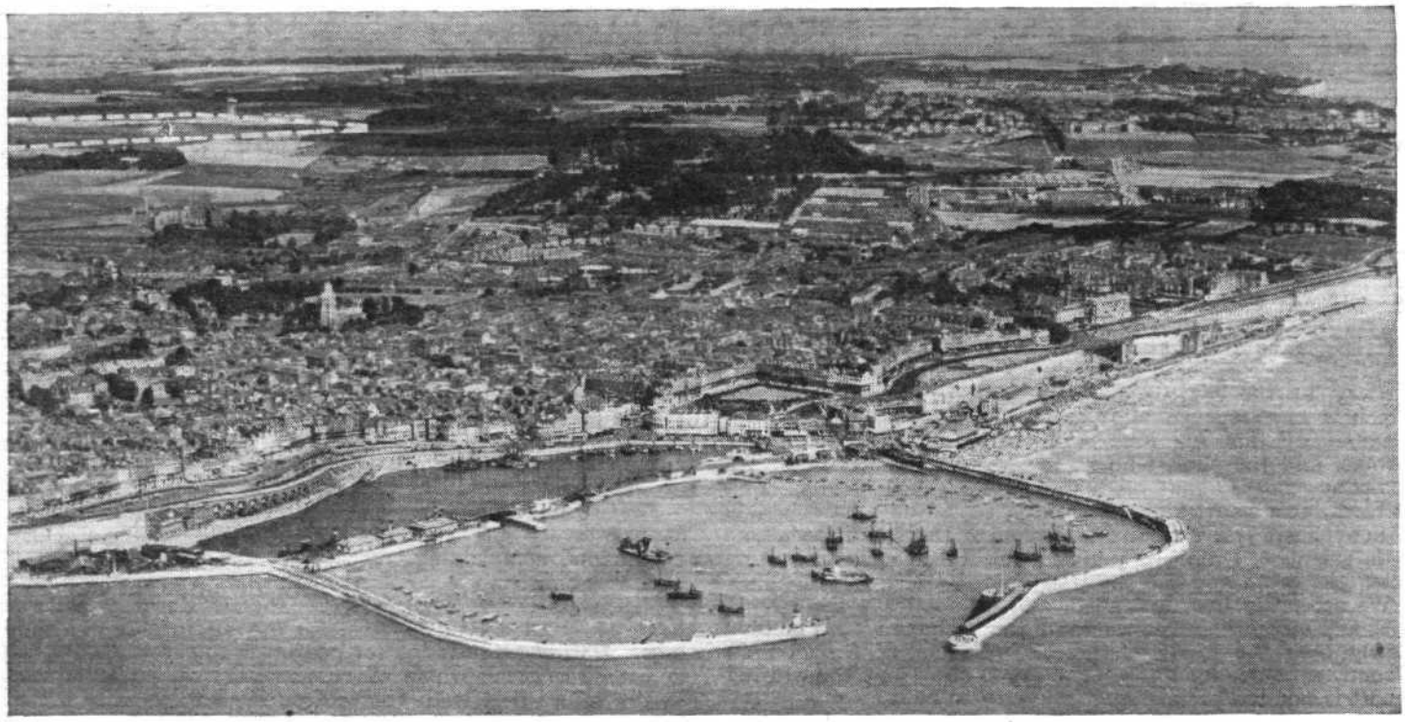
Since 1932 Blackpool and West Coast Air Services, Ltd., have been running a fairly regular service between Blackpool, Liverpool, and the Isle of Man. We hear that the company proposes to maintain their service, which is at present twice daily in each direction, during the winter months.

Northern Airways

During September, Northern Airways, of Newcastle-on-Tyne, owned by Mr. George Nicholson, who is well known in coach circles, are operating from Cramlington to Carlisle and the Isle of Man on Mondays and Saturdays, starting from Cramlington at 9.30 a.m. and from the Isle of Man at 12.30 p.m. A D.H. "Dragon" is being used.

Later on it is just possible that the service may be extended to Beltast, but nothing has yet been definitely settled.

Commercial Aviation



BY AIR TO RAMSGATE: Less than two miles away from the Royal Harbour, Ramsgate's future municipal airport will, when completed, cover 84 acres. Its position is clearly marked in this view of the resort, and the harbour in the foreground, incidentally, should give safe anchorage for seaplanes, which may eventually become popular with private owners.

Record Mail Load

On August 15 the north-bound Imperial Airways machine left Johannesburg carrying the heaviest load of mails that has ever left the Union—710 lb.

Weather Broadcasts

As from last Sunday weather reports, forecasts and navigational warnings issued from Heston Airport are being broadcast on a frequency of 249.5 kc/s (1,203 metres).

The Australian Service

In order that the Duke of Gloucester may despatch the first mail aeroplane from Brisbane, this will be started two days before the original intention. The weekly service provides for a twelve-day journey between Brisbane and London, but on this occasion the schedule has been extended to fourteen days.

The first machine leaves Croydon with the Christmas mail on December 8, and arrives at Brisbane on December 20. Qantas Empire Airways, of course, will operate the Singapore-Brisbane section with D.H.86's.

"Homing" Wireless on Australian Route

The five D.H.86's for the Singapore-Brisbane section of the England-Australia air route are being fitted with Marconi transmitting and receiving equipment. They will also carry the Marconi "homing" device, type A.D.32d, as an aid to navigation.

The sets with which they are being fitted are of a special type, known as the A.D.37c/38b, designed particularly for long-distance routes of this nature. Transmission and reception, by telephony or telegraphy, can be carried out on either short or medium wavelengths (40-80 and 500-1,600 metres), an arrangement which enables regular communication to be maintained under severe atmospheric conditions, and over great distances.

The A.D.37/38 apparatus was used with conspicuous success on the survey flight for this air route carried out by Major H. G. Brackley in *Astræa* last summer, when messages were exchanged between ground and air at distances up to 3,500 miles.

The Marconi "homing" device is one of the latest aids to air navigation, requiring no special ground organisation. It enables a pilot to set a direct course towards any suitable wireless transmitting station along the route, and has proved simple and efficient in actual operation on the Indian and African air routes.

To the Isle of Wight

During the last two weeks Portsmouth, Southsea, and I.O.W. Aviation, Ltd., carried 2,439 and 1,926 passengers from the mainland, and well over two hundred each week from Heston.

Bombay-Calcutta Air Service

A regular air service between Bombay and Calcutta is expected to be opened next year, since the Government of India is launching a programme for the development of air routes and the improvement of the aerodromes.

Tatas have already laid proposals before the Government. The line from Bombay will be through Nasik, Akola, Nagpur, Raipur, and Midnapur. The whole route has not yet been surveyed. If funds are promptly sanctioned, Sir Frank Noyce announced in the Legislative Assembly, the line may be open before the beginning of the cold weather of 1935.

The most important measure now to be undertaken for the Karachi-Calcutta line is the completion of night lighting along the route. The present position can be briefly summarised as follows:—At Karachi only boundary lights for the landing area need to be provided; Jodhpur has its lighting arrangements partially installed; Allahabad requires only the provision of boundary lights; and at the new Gaya aerodrome, lighting has yet to be provided.

Interesting Australian Developments

FOLLOWING the acquisition of New England Airways, an independent company in Australia, by British Pacific Trust, a new company has been formed, under the title of Oceanic Airways of Australasia, to operate fast passenger and goods services between the main centres of the Commonwealth. The Right Hon. W. M. Hughes, a former Prime Minister of Australia, is to be chairman of the new company. Although there are no immediate plans for the institution of a service from Australia to New Zealand, the name of the company may be taken to indicate that early steps will be taken to prepare plans for linking the two countries by air.

In view of the association between British Pacific Trust, who recently purchased Hanworth, and General Aircraft, Ltd., it may be anticipated that Monospar machines will be used. A Monospar, incidentally, is now on its way to Australia for use by the Australian Air Ministry.

Plans are well advanced for the production of larger passenger and freight machines, embodying the Monospar wing, and Mr. D. L. Hollis Williams, who designed the long-range R.A.F. monoplane, has recently joined General Aircraft, Ltd., as chief engineer.

ORDNANCE SURVEY PLAN REVISION

Aerial Photography suggested as a Solution

WE have already drawn attention to the urgent need for complete revision of the 1/2,500 scale Ordnance Survey Plans. These plans are, it seems, in some cases, already forty years out of date, and development, particularly in town-planning areas, is going ahead so fast that authorities feel that, if the ordinary surface methods of revision are adhered to, there is a grave danger of it being found impossible to catch up with the revisionary work. The seriousness of this cannot be overestimated; not only does it mean that the whole of the enormous sum, said to be about £12,000,000, which has been sunk in the work, may be wasted, but also it entails the spending of large sums by the local authorities, because building or development work submitted to the Ministry of Health for approval has to be accompanied by a corrected and up-to-date plan on this scale. The position at the present time is that local authorities are endeavouring to correct the plans which are applicable to their own work. This state of affairs can, however, be remedied if the proposals which have already been placed before Brigadier H. St. J. L. Winterbotham, Director-General of Ordnance Survey, are accepted.

Back in April of this year the firm of H. Hemming and Partners submitted proposals, which were duly recorded in *Flight*, for a complete revision of the town-planning areas amounting to some 16,000,000 acres at a cost of 3d. an acre, provided they were given contracts for not less than one million acres at a time. Various difficulties, however, arose, and those proposals were not accepted. The same firm has now come forward with an offer to make new proposals on an entirely different basis. They offer to photograph the whole of this huge area, and, provided they can get thirty suitable days per year, to finish the work within two years. They offer to supply photographs to the Ordnance Survey at a figure which is well below cost, on the assumption that they will be able to recover the balance of the cost partly from the commercial rights of the photographs, and partly by providing local authorities with transparencies. With these they will be able to make revised plans for their development work by superimposing them on the existing Ordnance Survey plans.

These transparencies really form the crux of the whole matter. Major Hemming and his partners have evolved an extremely interesting method which enables them to make transparent positives to scale. It is an easy matter to lay these positives over the existing plans, and by means of carbon paper or other ordinary methods the corrections can easily and quickly be transferred to the plans. The solution offered by Major Hemming will also provide work for the several well-established air survey companies who are thoroughly capable of undertaking accurate photographic air survey work, as not only will Hemming and Partners be putting an air survey unit into the air themselves, but they reckon that, to complete the work within the period stated, it will be necessary to have seven other units working.

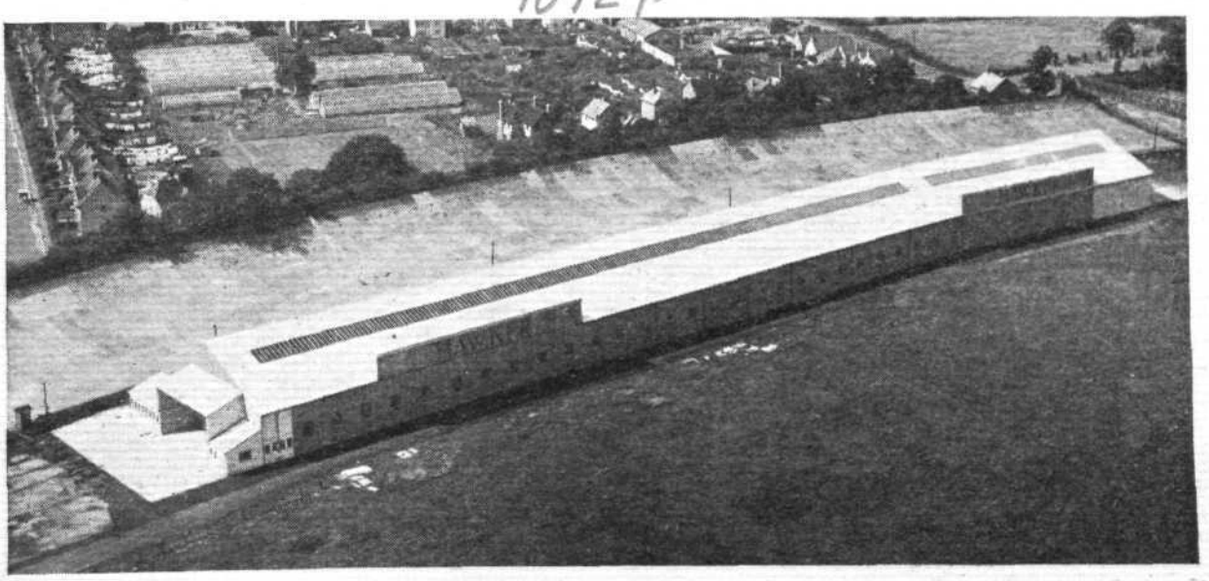
There has been a considerable amount of talk in the daily Press about these proposals, in the course of which it has been suggested that the R.A.F should undertake the work. This is not only illogical, but undoubtedly should not be entertained by the authorities, as the work is such as to require the specialised commercial knowledge which our air survey companies possess and the photographic units of the R.A.F. do not. Major Hemming feels that air survey can best be carried out on purely commercial and what may be called mass-production lines. His firm hold large contracts, both in Africa and Australia, and that their doctrine is the correct one is being proved by their results.

General Aircraft Developments

Both General Aircraft, Ltd., and the Monospar Co., Ltd., are going into voluntary liquidation from September 14. Mr. Noel Smith has been appointed liquidator. The assets of both companies have been acquired by the new company which will also bear the name of General Aircraft, Ltd., and will carry on production at the new workshops which are being put into order at Hanworth Park. The capital and the Directors of the new company will be entirely British.

Heston Aircraft Company Appointments

Mr. G. Cornwall, B.A., A.F.R.Ae.S., has been appointed Chief Designer to the Heston Aircraft Co., with Mr. Stanley Evans as his assistant. Mr. Cornwall has, for the last ten years, been chief technician to Saunders-Roe, Ltd., previous to which he was with the Air Ministry, and for some time with the H.G. Hawker Engineering Company. Mr. Stanley Evans has, for the last five years, been in America, during which time he worked for both the Douglas and Curtiss Wright Companies.



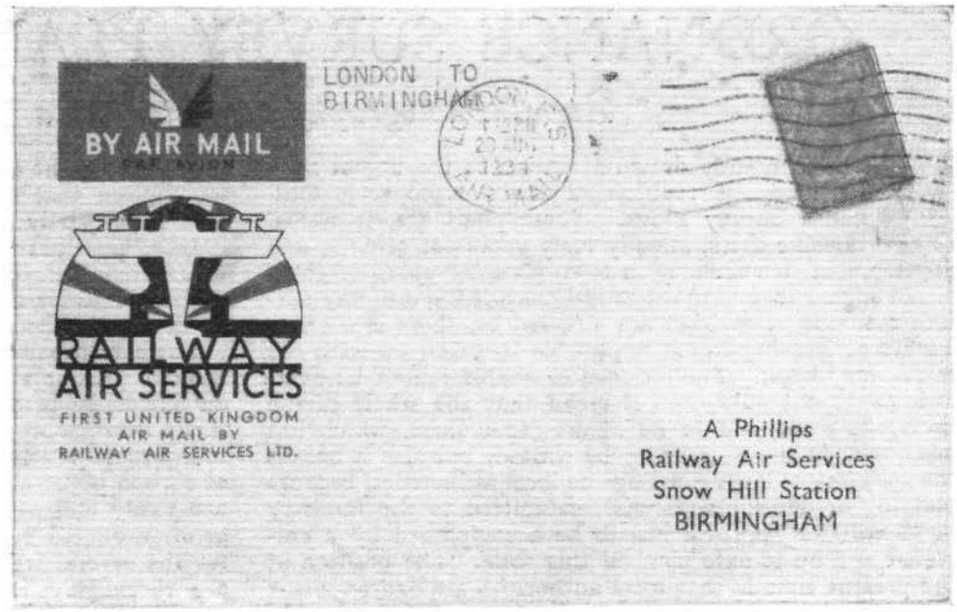
HAWKER EXPANSION: The new hangar at Brooklands has been erected on the site where Mr. Sopwith had his earliest sheds. The steel work was done by Boulton and Paul, and Cellon Ltd. supplied the "Cerrux" paintwork, which is becoming very popular. (*Flight* Photo.)

AIR POST STAMPS

By DOUGLAS ARMSTRONG
(Editor of "Stamp Collecting," etc.)

Inland Air Mail Souvenirs

As a result of the inauguration of the British Inland Air Mail service on August 20 and 21, air post collectors will be able to add to their collections anything from one to 116 first flight covers, according to their personal inclination. Needless to say, it will be only the specialist in British air mail souvenirs who will require the complete series covering every stage of every route in either direction. The price at present asked for these is between £6 and £8, so that the enterprising amateur who had the foresight to send himself a letter to and from each centre served by the inland air mail at an initial cost of something less than 30s. may have good reason for self-congratulation! The moderate enthusiast will probably be satisfied with about twenty covers carried over the principal routes only, which are to be had for about 15s. the set, whilst many will find a single example sufficient for their purpose.



FOR INTERNAL APPLICATION: One of the special envelopes issued by Railway Air Services, and flown from London—Birmingham on Aug. 20.

Chacun a son gout

Although as many as 20,000 letters were contained in the inaugural mails transported over the mainlines, the number despatched by some of the subsidiary and connecting services were in some cases as few as 30. Thus it will be seen that the value of first flight missives in the collector's mart must vary to a remarkable extent. Even the commonest must be definitely scarcer than cards bearing the first day postmark of the London-Windsor experimental service of September, 1911, of which there were at least 60,000 flown.

Souvenir envelopes of distinctive design, incorporating the latest type of Post Office air mail label, were used for probably the greater proportion of letters sent on the inaugural flights, and a great number had, in addition, the improved 1½d. postage stamps, newly released on the same day. These envelopes were provided by Railway Air Services, Ltd., at a charge of 1d. apiece, and so great was the demand that two entire printings were completely sold out a week before the service was put in operation.

On account of adverse weather conditions very few of the mails were carried over the scheduled route by air on August 20, both the North- and South-bound air mails being abandoned, the former at Manchester and the latter at Birmingham, whence they were sent forward by rail to their ultimate destinations. This should not, however, detract in any way from their status as "first flight covers," albeit sticklers may prefer those carried on August 21, on the grounds that they flew all the way. The Plymouth-Liverpool service was actually the only one carried out according to schedule on the inaugural day. Official statistics are not available at the time of writing, and until they are it is not possible to cover accurately the relative rarity of covers carried on the different flights.

Portsmouth-Isle of Wight Vignettes

A second series of vignettes has been issued by the Portsmouth, Southsea and Isle of Wight Aviation, Ltd., in booklets of 20, which are sold for 5s. each. The picture shows one of the company's 'planes over the Needles, and there are two printings, one in blue and the other in sepia. In deference to the Postmaster-General's ruling, they bear no indication of value, nor yet of the purpose for which they are intended.

First Turkish Air Stamps

The long promised issue of Turkish air mail stamps materialised finally on August 15 in the form of five denominations of the regular Ottoman postage stamps overprinted with an aeroplane device in conjunction with the year "1934," and in certain instances surcharged with different values, viz., 7½ kurus, 12½-15k., 20-25k., 25k. and 40k. This is the only important addition to the world's air post stamps to be recorded this month.

These stamps are being used provisionally over the internal air line Istanbul-Eski-Chibir-Ankera. A separate series of definitive design is to be provided for the international service linking Turkey-Rhodes and Greece with Italy.

New Guinea-Australia Air Mail

The first official mail-carrying flight between New Guinea and Australia was carried out by the pilot, C. T. Ulm, in his machine "Faith in Australia," on July 30 last, the mail from Lae being received at Sydney on August 1. In addition to a 3d. New Guinea air mail stamp, which paid the aerial, first flight covers were improved with an octagonal cachet having a winged shield bearing the inscription "July, 1934" in the centre, with the words "New Guinea-Australia" above and "First Official Air Mail" below, the whole struck in violet ink. It is not yet known how many letters were actually flown on this occasion.

NEW COMPANIES

FISHER AVIATION CO., LTD. Capital, £5,000 in £1 shares (1,000 management and 4,000 preferred ordinary). Objects: To acquire and lay out lands as aerodromes, air-ports, athletic or sports grounds, etc., and to adopt an agreement with Francis C. Fisher and Havelock Clive-Smith. The subscribers (each with one share) are: Francis C. Forbes, 66, Croham Road, South Croydon, Surrey, solicitor. Richd. Robinson, 50, Gordon Road, Chadwell Heath, Essex, clerk. Solicitors: Birkbeck and Co., 49, Moorgate, E.C.

TOLLERTON AERO CLUB, LTD., The Aerodrome, Tollerton, Notts. Capital £1,000 in £1 shares. Objects: To carry on the business of carriers of persons for pleasure flights, and carriers of passengers, goods and mails in aeroplanes and aircraft of every description, etc. The permanent directors are: Joseph J. Hall, "Westfield," Ashington, Northumberland, mining engineer. Lewis W. Hall, "The Elms," Gunthorpe, Nottingham, aviation pilot. Thomas W. Shipside, Carrington Street, Nottingham, motor car agent. Secretary: T. W. Shipside. Solicitor: W. N. Craigs, Post Office Chambers, Ashington, Northumberland.

PUBLICATIONS RECEIVED

Smithsonian Miscellaneous Collections. Volume 92. No. 8. Samuel Pierpont Langley. By C. G. Abbot. August 22nd, 1934. Publishers: Smithsonian Institution, Washington.

The First War in the Air. By R. H. Kiernan. Price 5/- net. London: Peter Davies Ltd.

An Introduction to Aeronautical Engineering. Volume III. Properties and Strength of Materials. By J. D. Haddon. Price 8/6 net. London: Sir Isaac Pitman & Sons, Ltd.

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: Cyl. = cylinder; i.c. = internal combustion: m. = motors. (The numbers in brackets are those under which the Specification will be printed and abridged, etc.)

APPLIED FOR IN 1932

Published September 13th, 1934.

32033. BENDIX AVIATION CORP. Carburettors (addition to 402,763). (415,068.)

APPLIED FOR IN 1933

Published September 13th, 1934.

4692. INDIA RUBBER, GUTTA PERCHA, & TELEGRAPH WORKS CO., LTD., and F. J. TARRIS. Brakes for aircraft wheels. (415,097.)

5108. J. POPELAK. Parachute harness. (415,123.)

5569. BRISTOL AEROPLANE CO., LTD., A. H. R. FEDDEN, and F. M. OWNER. Supercharged i.c. engines. (415,139.)

5586. MARCONI'S WIRELESS TELEGRAPH CO., LTD., and E. GREEN. Directional aerial systems. (415,141.)

10460. SPERRY GYROSCOPE CO., INC. Searchlight control systems for locating aircraft. (415,201.)

28363. C. DE HAVA. Position and movement indicator for flying machines. (415,277.)